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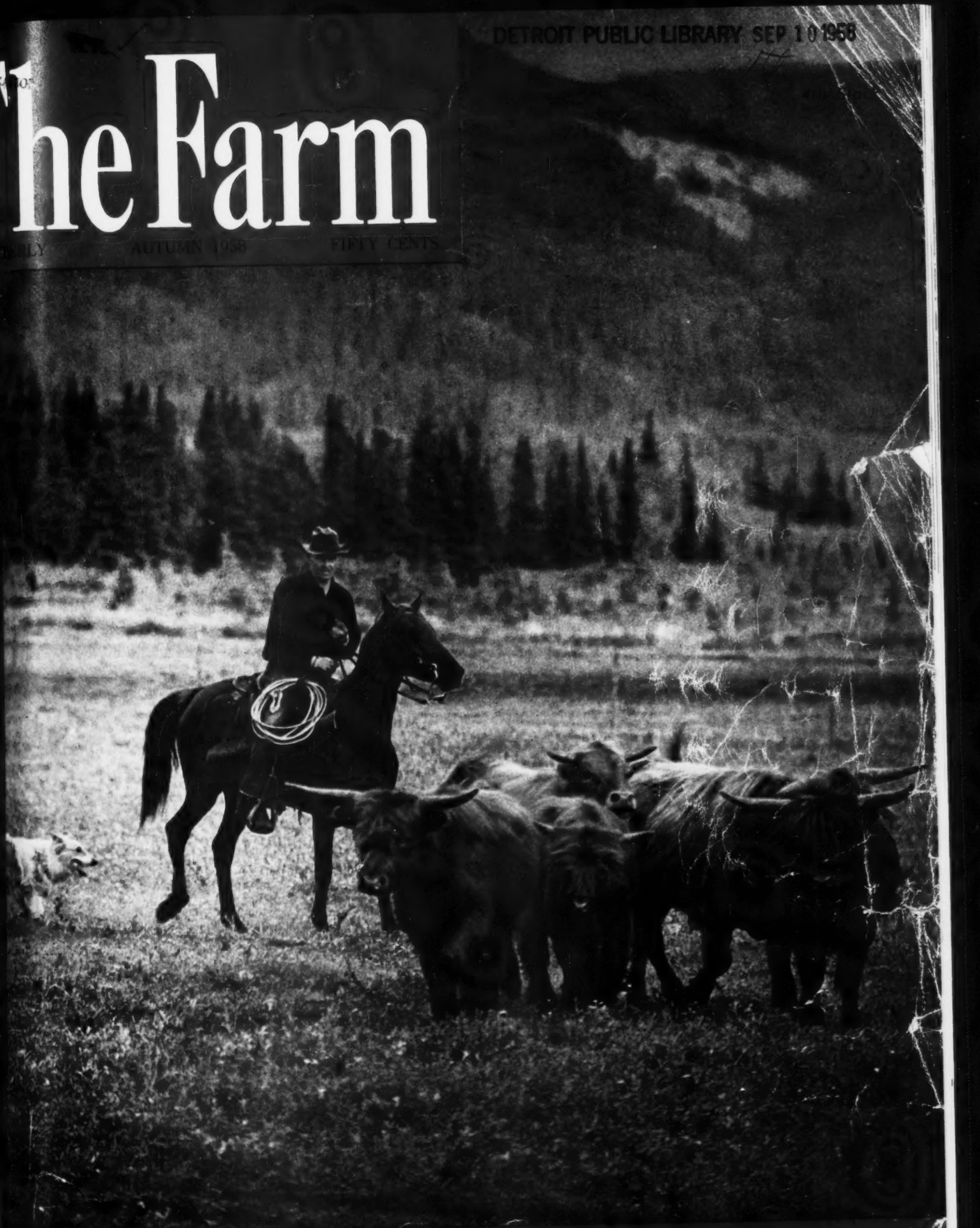
The Farm

QUARTERLY AUTUMN 1958 FIFTY CENTS



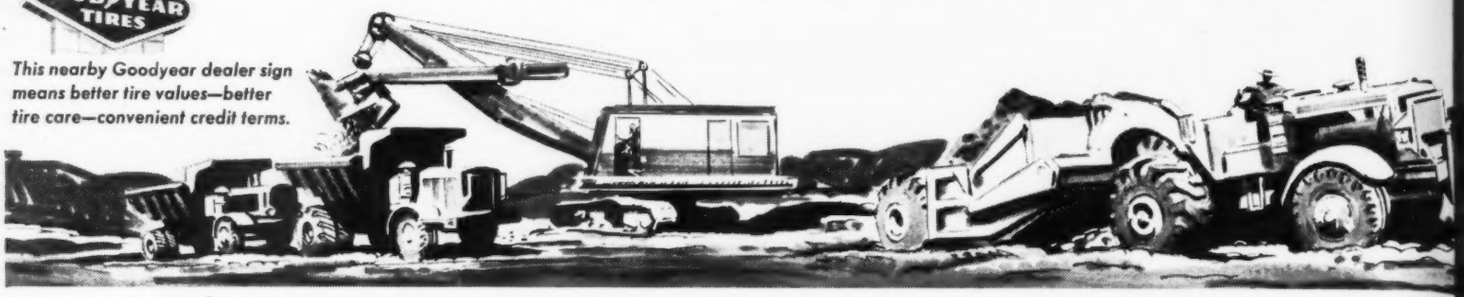
Alaska Stockman --

what it's like to ranch in our new, giant State

3-T cord helps lick toughest jobs on earth—

GOODYEAR TIRES

This nearby Goodyear dealer sign means better tire values—better tire care—convenient credit terms.



Now makes New

Traction Sure-Grip Tractor Tire

stronger, longer-wearing

Watch "Goodyear Theater" on TV every other Monday evening

Sure-Grip—T. M. The Goodyear Tire & Rubber Company, Ak

TRIPLE-TOUGH 3-T CORD—proved tire-saver on giant earth-moving vehicles, mammoth trucks and high-powered cars—is now yours in the world's newest, workin'est farm tractor tire. It's Goodyear's new TRACTION SURE-GRIP!

3-T is one of the big reasons why the TRACTION SURE-GRIP reduces bruise, crack and break problems to new lows—why it's stronger—why it's *TOPS* in all-round durability and long, useful life.

But 3-T Cord is just *one* of many advancements that make TRACTION SURE-GRIP the greatest time-saver and fuel-saver ever. Get *all* the facts from your helpful Goodyear dealer—or

Goodyear, Farm Tire Dept.,
Akron 16, Ohio.

Like steel, tire cord must be *tempered* to tough. Goodyear's exclusive 3-T process, ing Tension, Temperature and Time, *tempers* cord to make it TRIPLE-TOUGH—to you longer tire life.

Buy and Specify

60th ANNIVERSARY

GOODYEAR

More farmers prefer Goodyear Tractor Tires than any other kind

NEW TRACTION SURE-GRIP FARM TIRES

SEP 10 1958

Ready for any farm job! It's a rugged, easy-handling International Truck with platform body, from the world's most complete truck line. Color: Sunshine Yellow.

They think of everything when they design International Trucks. *Style?* Sure. *Convenience,* too. For instance: a Sweep-Around windshield that's the largest on any pickup... yet not in your way as you get in and out.

A roomier ride—with a better view of the road! International's all-truck power gives you fast getaway with welcome gas savings. Colors here: Coral Pink and Driftwood Grey. See your International Dealer.

INTERNATIONAL HARVESTER COMPANY • CHICAGO
Motor Trucks • Crawler Tractors
Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

INTERNATIONAL TRUCKS cost least to own!

"FIRESTONES GRIP BETTER, RUN CLEANER," *says Marion Hurd, grain farmer, Ogden, Iowa*

The first set of Firestone tires Marion Hurd ever owned came on his new tractor. And just one day in the field—working the rich black loam soil of Iowa—proved to him in short order that Firestone's deep-bite traction does away with fuel-eating wheel slippage and puts *all* available horsepower to work . . . none to waste!

"Firestones are the best traction tires I've ever owned," says Marion Hurd. "My new tractor was delivered with Firestones and I'm mighty glad it was, too, because I noticed a big difference in tire traction the first day I used it. I have used a different make of tires on other tractors, but I have found they just don't grip and take hold like Firestones."

Firestone Rubber-X treads last longer on the road or in the field. They deliver full-power traction longer in *all* field conditions. The sidewalls are designed and built with a new *special sidewall rubber* to give longer service life and prevent cracking and premature aging. And Firestone S/F (Shock-Fortified) cord lets the new Firestone All Traction Champion* withstand 35 percent more impact! They're stronger than any farm tire made.

Ask about the new Firestone All Traction Champion at your Firestone Dealer or Store. Remember, Firestone's Free Loaner Service lets you use new Firestone tires while your old ones are retreaded or repaired.

*T.M.

Firestone

BETTER RUBBER FROM START TO FINISH

Enjoy the Voice of Firestone on ABC television every Monday evening.

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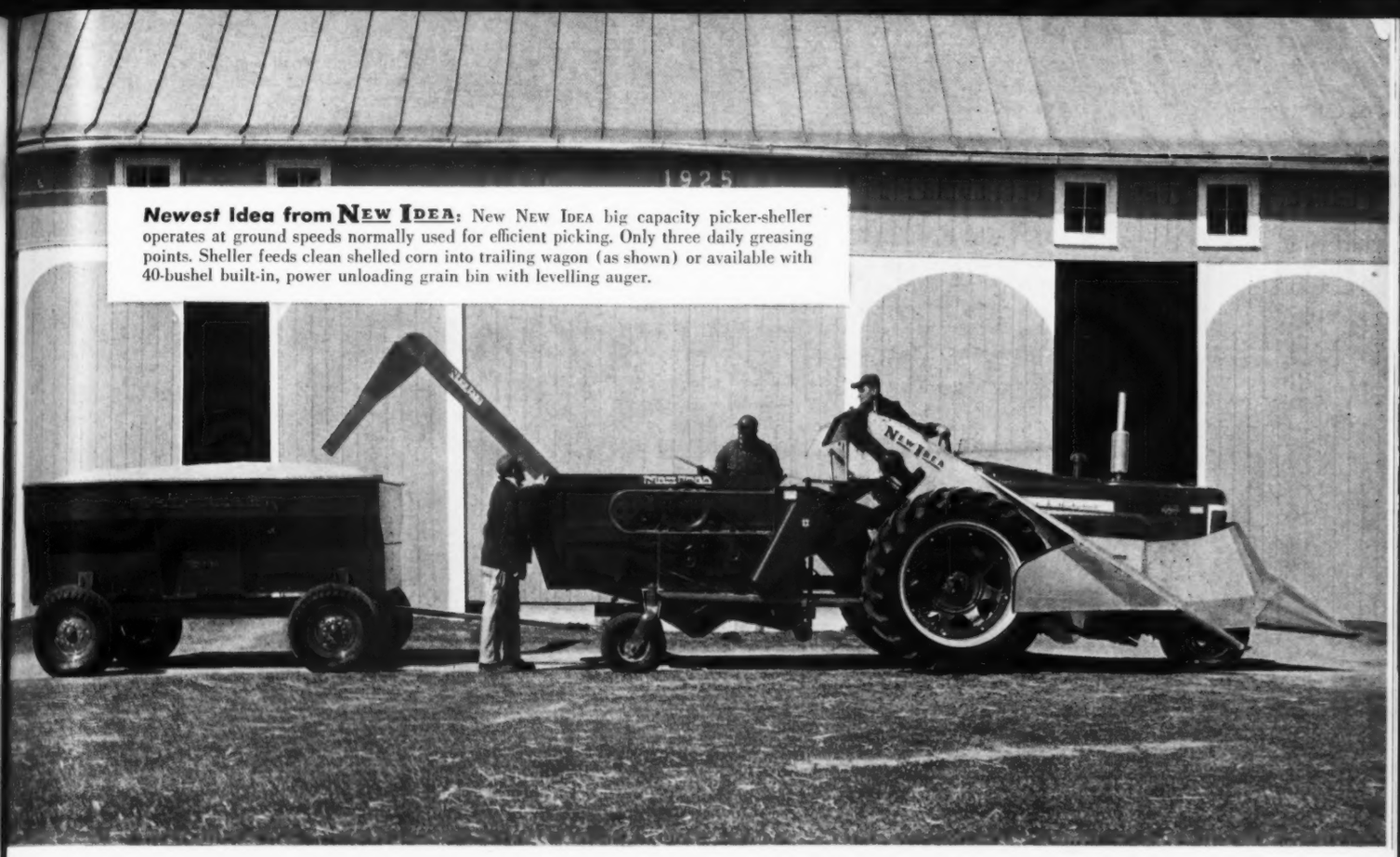

Newest Idea from NEW IDEA: New NEW IDEA big capacity picker-sheller operates at ground speeds normally used for efficient picking. Only three daily greasing points. Sheller feeds clean shelled corn into trailing wagon (as shown) or available with 40-bushel built-in, power unloading grain bin with levelling auger.

Now you can

PICK-&-HUSK and PICK-&-SHELL

...*Both* the same day

Team up NEW IDEA's famous 2-row gathering unit with its own trailing husking bed or with the new NEW IDEA field sheller. One man can make the change-over in less than 30 minutes. The sheller operates from the tractor PTO and hugs the gathering unit for easy maneuverability. It lets you harvest your corn earlier. And only three fittings need to be greased daily . . . only ten grease fittings in all!

For the first time you have unlimited flexibility in how you harvest your corn crop. For example, you can harvest ear corn in the morning—shelled corn in the afternoon. Harvest as much as you want, *any* way you want it.

Permits Earlier Corn Harvest. With the new NEW IDEA field sheller you can harvest your corn crop earlier, leaving more time for fall plowing, tillage, and seeding. Earlier harvesting reduces field loss, since stalks and ears are not so dry. And you can frequently sell your shelled corn at high old-corn prices. Shelled corn is easier to handle, requires 50% less storage space than ear corn. With fewer wagon changes, you can harvest more corn per day!

Precision-Engineered for Long Life. The NEW IDEA field sheller was engineered to do one job and one job well: to give you gently-shelled, clean corn — with a minimum investment in equipment.

Ruggedly Built for Heavy Corn Crops. There are no delicate mechanisms in the NEW IDEA sheller that may be damaged by cobs and pieces of heavy stalks, no danger of rapid machine depreciation from harvesting corn instead of small grain. The NEW IDEA sheller will give you years of dependable service.

You can buy a NEW IDEA mounted picker or snapper, knowing that the field sheller can be added at any time. If you are one of the many thousands of farmers who already own a NEW IDEA mounted picker, plan to enjoy more versatile, more profitable corn farming by investing in the new NEW IDEA field sheller.

See it at your NEW IDEA dealer's today, or write for free literature.

For Cleanest Husked Corn, you can't beat NEW IDEA's famous mounted picker. Its trailing husking unit rides on two rubber-tired caster wheels, reducing weight on tractor wheels and permitting operation in soft fields. Husking bed has 10 extra long husking rolls, largest capacity on any mounted picker.

NEW IDEA FARM EQUIPMENT COMPANY
DIVISION Avco DISTRIBUTING CORP.
Dept. 702, Coldwater, Ohio

Please send me the following FREE literature

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- ☐ 2-row pull-type picker
- ☐ 1-row pull-type picker
- ☐ 1-row pull type snapper
- ☐ 2-row mounted snapper
- ☐ New field sheller

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This "MILLION DOLLAR" Bag brings Animal Health Engineering to your farm

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When your veterinarian calls at your farm,

he invariably carries with him a small bag containing the tools of his profession. This bag, however, is much more than a carrying case for implements and drugs. It is the symbol of his skill in the science of Animal Health Engineering — the science he uses to save millions of dollars worth of livestock every year.

How the "Million Dollar" bag saves dollars for you

Every time your veterinarian makes his periodic examination of your herd, that's Animal Health Engineering at work: he knows you save money when injury or disease are treated while still in the early, controllable stages.

Each time he advises on disease prevention, sanitation, nutrition or surgery, his recommendations are designed to protect your profits. When sudden illness strikes, trust him to make accurate diagnosis and begin proper treatment. His science and skill are on-the-job to save your valuable animals.

Help your veterinarian by keeping a "case history" for every member of your herd. Accurate records help him save dollars for you.

The "Million Dollar" bag—symbol of progress

When your veterinarian detects symptoms of disease, his diagnosis may indicate the use of one of the miraculous new drugs — some so new they were unknown only a few years ago. Perhaps he may choose one bearing the name Squibb on the label. When he does, you can be confident it is of unsurpassed quality, purity and potency. As with all Squibb products, SQUIBB QUALITY IS THE PRICELESS INGREDIENT.

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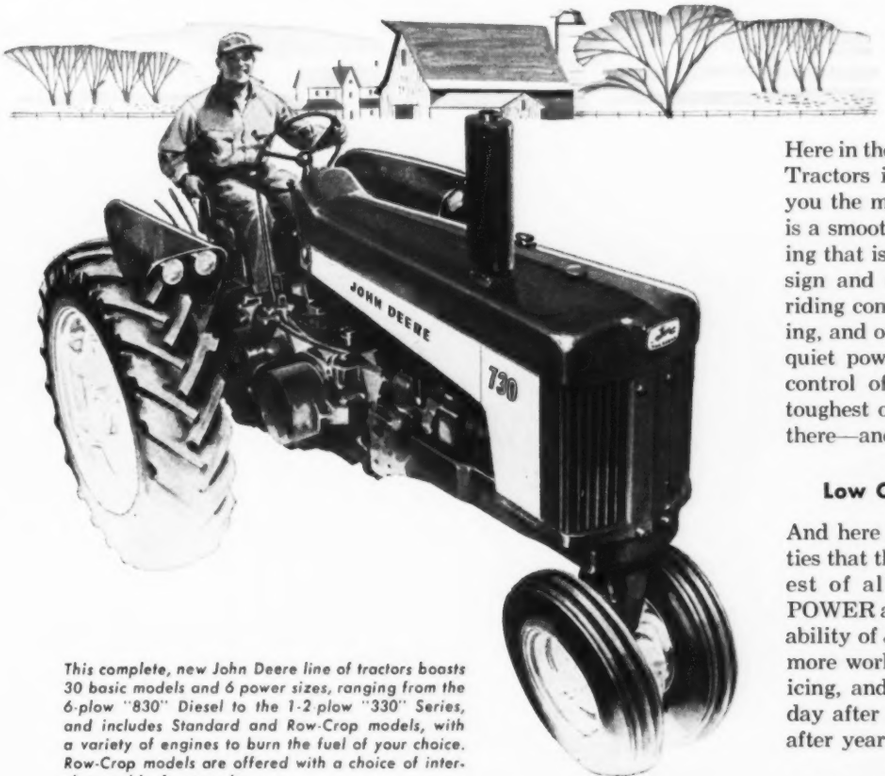
Ask your veterinarian about Synovex-S for steers, Synovex-H for heifers, Synovex-L for lambs—Squibb's 3 new balanced hormone implants which give extra weight gains and improve feed conversion up to 20%. Get free new book, "MORE PROFITABLE LIVESTOCK FINISHING." Write SQUIBB, *Veterinary Department*, 745 Fifth Avenue, New York 22, N. Y.

SQUIBB — A NAME YOU CAN TRUST

STEP UP to New Farming Ease and Convenience with a New JOHN DEERE Tractor



This complete, new John Deere line of tractors boasts 30 basic models and 6 power sizes, ranging from the 6-plow "830" Diesel to the 1-2 plow "330" Series, and includes Standard and Row-Crop models, with a variety of engines to burn the fuel of your choice. Row-Crop models are offered with a choice of interchangeable front ends.

New "730" SERIES

New "830" SERIES

Here in the lines of these new John Deere Tractors is your tip-off to what awaits you the moment you step aboard. Here is a smoothness in trim, functional styling that is reflected throughout their design and construction. Here is smooth riding comfort . . . smooth shifting, driving, and operating ease. Here is smooth, quiet power . . . and smooth, accurate control of equipment in the roughest, toughest of field conditions. They're all there—and more!

Low Cost, Dependable Power

And here again are those tractor qualities that the man on the farm rates highest of all—typical JOHN DEERE POWER and ECONOMY . . . the known ability of John Deere Tractors to handle more work at lower costs for fuel, servicing, and maintenance — and to do it, day after day, season after season, year after year.

A New, Exciting Tractor Experience

Here, in this brand-new lineup is the tractor for you—packed with new features that not only promise new farming ease and convenience, but that make all those famous, favored, and time-proved John Deere power, performance, and economy features more valuable than ever. Give your John Deere dealer a ring today and treat yourself to a new and exciting tractor experience.

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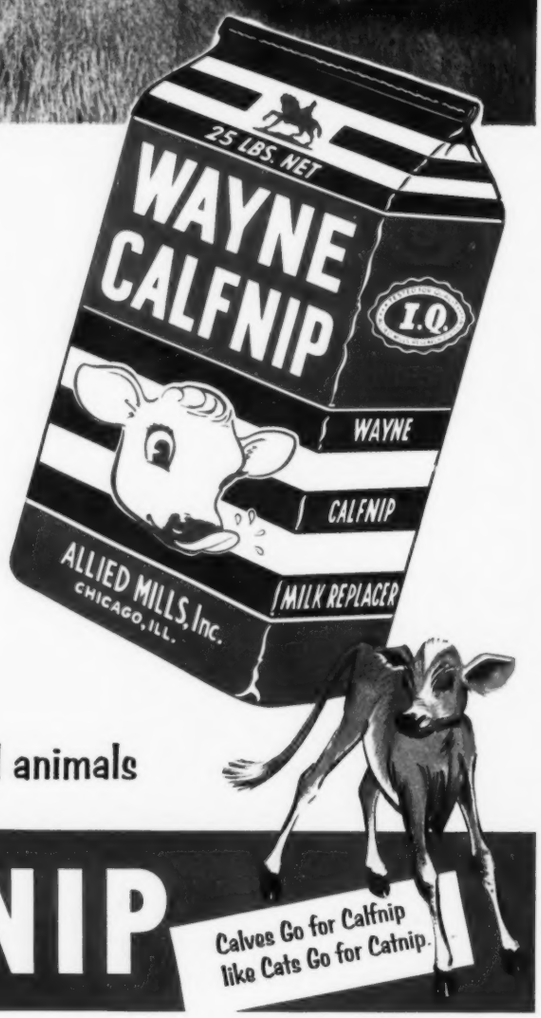

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The Farm QUARTERLY

Autumn, 1958, Volume 13, No. 3

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THE FARM QUARTERLY
22 East Twelfth Street, Cincinnati 10, Ohio

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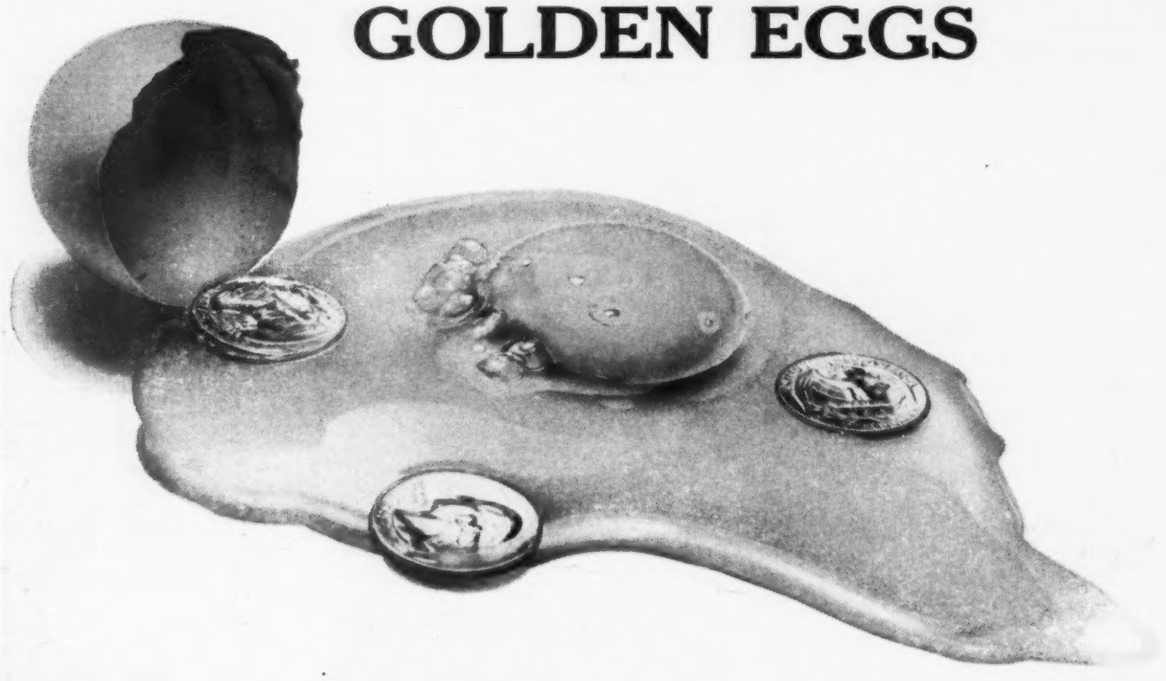
Farm Quarterly is published Spring, Summer, Autumn and Winter. Price 50c a copy; $2.00 a year, $3.50 two years, $5.00 three years. Add $1 per year for countries outside USA and Canada. Send check to Farm Quarterly, 22 East 12th Street, Cincinnati 10, Ohio. Winter issue on sale Dec. 6 at all Class A newsstands.

The money is in the GOLDEN EGGS



Get more GOLDEN EGGS on RED ROSE Poultry Feeds

It's the GOLDEN EGGS . . . the eggs above 50% lay that make the profit. Good stock, good management are important. But it is the feed that makes the difference between what a flock is producing and what it *can* produce. Red Rose Poultry Feeds are scientifically developed to give hens the energy they need to produce "Golden Eggs". . . the 60% to 80% production that means money in the bank for you. Farm for PROFIT . . . feed Red Rose Guaranteed Poultry Feeds.

Percentage of Flock Lay	Pounds Feed Per Dozen Eggs	Extra Dozen Eggs You Get	Increased Income Per Ton of Feed From The "Golden Eggs"
50%	5.52	0	0
60%	4.77	57	$28.50
70%	4.43	89	$44.50
80%	3.81	163	$81.50

Feed required per doz. at different rates of production based on studies at Red Rose Research Center.

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GUARANTEED FEEDS
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From Maine to Florida;
Ohio to the Atlantic

Skip vaccination? Not me! ...I wouldn't dream of it!

It always pays to

consult your veterinarian

he knows best

—what's best

Cholera is not the disease of a pig or two. It is a wholesale killer. If it strikes, your entire herd is at stake. Vaccination is a small price to pay for the best peace of mind and safety you can buy. Again this season, have your pigs vaccinated. Take advantage of the professional experience of your veterinarian.

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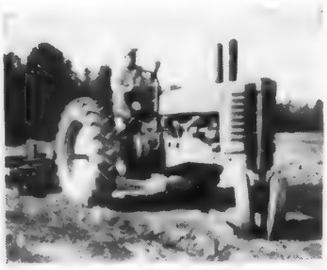
Smileage!

9 out of 10 users say: "B.F.Goodrich farm tires are the best I've ever used!"

(Based on an actual survey of farmers all over the country)

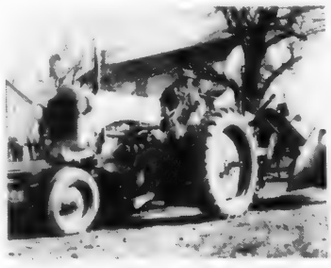
Don't take our word for it. Take the word of hundreds of B.F.Goodrich tire users all over the country. 9 out of 10 of them say B.F.Goodrich farm tires are the best they've ever used!

B.F.Goodrich makes a complete line of farm tires, headlined by the big Power-Grip tractor tire which gives so much traction that oversizing may be a thing of the past. The line includes the low-cost Super Hi-Cleat and all types of front wheel and implement tires. It will pay you to switch to B.F.Goodrich farm tires! See your B.F.Goodrich dealer today—he's listed under Tires in the Yellow Pages of your phone book. *B.F.Goodrich Tire Co., A Division of The B.F.Goodrich Co., Akron 18, Ohio.*



J. F. Johnson farm, Iver, Va.—"Power-Grip tires give greater traction than other makes."

R. T. Pardue, Lane, Tenn.—"I specify Special Service tires for muddy fields."



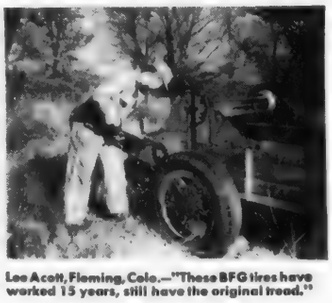
Adolph Vaughn, Thebes, Ill.—"Super Hi-Cleat tires are the best for cleaning themselves."

Robert Reynolds, Mt. Vernon, Ohio—"Dual Ring tires reduce shimmy, steer easier."

W. E. Hutchinson, Leavenworth, Kans.—"Power-Grip tires don't slip—save me time."

Garland Long, Plainview, Texas—"I choose B.F.Goodrich tires for 3 tractors and 3 trucks."

Wm. Schrock, Almyra, Ark.—"Special Service tires give greater traction, climb levees easier."



Lee Acott, Fleming, Colo.—"These BFG tires have worked 15 years, still have the original tread."

Albert Peterson, Irvington, Nebr.—"After 3 years my Super Hi-Cleats are hardly worn."

B.F.Goodrich *farm tires*

© The B.F.Goodrich Company

Dynamic D-17 power talks in 8-hour plowing test

Actual photograph after 8 hours of plowing

. . . plows 67% more acres
. . . uses a half gallon less fuel per acre

There's meaning for every farmer in this all-day plowing test of the Allis-Chalmers D-17, pictured here, in competition with a tractor of another make that weighed nearly 1,000 lbs. more.

Plowing conditions were identical . . . same field, same soil, same depth, same fuel, same length of time—8 hours. Both tractors were driven by the farmers who owned them, and both were operated at their normal plowing speed and load capacity.

Using an Allis-Chalmers plow, the D-17 with standard Power Director (the Big Stick) and automatic TRACTION BOOSTER system plowed exactly *67 percent* more acres than its competitor . . . *and used a half gallon less fuel per acre.*

Think what this saving in fuel will mean to you in a full season's work . . . or better yet, during the tractor's lifetime!

Yes, your dollars do a lot more farming when you move up to a dynamic D-17 or D-14 Tractor . . . today's most advanced farm tractors. Ask your Allis-Chalmers dealer for a revealing demonstration on your own farm.

ALLIS-CHALMERS, FARM EQUIPMENT DIVISION
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PERFECT CIRCLE

PISTON RINGS

Protein and Fat

Sirs:

For several years now my wife has been battling my alleged incipient obesity with a "high protein" diet—lean meat, cottage cheese, eggs, skim milk to drink.

I have read Frank West's authoritative article to her, wherein he sets forth that protein makes fat. I have urged that we change to non-protein foods like potatoes and gravy, dumplings, and pie a la mode. For an answer, she calmly looks me in the eye and wants to know if all Farm Quarterly articles are like that.

Do you suppose she thinks I am a sneaking brittle-boned Duroc, trying to hide my fat from her?

Charles Mills

Lewes, Delaware

Libelous Article

Sirs:

May I go on record as saying that I think your article by Frank West, "I Buy Top Hogs," chalks up some kind of a record in spreading ignorance? This libelous article not only marks Frank West as an ignoramus, but it also reflects upon the moral responsibility and integrity of the staff of THE FARM QUARTERLY. There is no question in my mind but what Frank West is a very capable and successful hog buyer and that he is using business methods that are admired by the people in the trade and his customers. If he had written about the type of hogs that he buys and his business methods, I am sure he would have appeared in the light of a successful, capable businessman, but when Frank West digresses from the business of buying, shipping, and selling meat-type hogs, over into the area of breeding and feeding those same hogs, he makes not only himself but the paper that published his statements appear irresponsible.

My hat is off to Frank West and to other hog buyers for their ability and success in selecting meat-type hogs, but I am sure if Frank was 100 per cent honest in print as he is in the yards he would admit that there is little if any significant difference between color or breed and meatiness. His spicy remarks about certain breeds and breed characteristics are untrue generalities without any basis of fact.

Now as regards feeding. Frank's comments on feeding make him appear as a fugitive of an insane asylum. Tests across the country during the past 50 years have proved beyond a doubt that feeding of protein is not only essential to rapid growth and gain but also the feeding of protein results in a firmer pork and less fat deposition than an all carbohydrate ration.

It is men like Frank with their keen judgment and business sense who add efficiency to our livestock marketing, but it is the outstanding breeders and feeders of *all breeds* of swine across the country who are making tremendous strides in furnishing the market with meat-type hogs. I suggest that Frank repeatedly buy hogs from reputation consigners and I would suggest that The Farm Quarterly ask one of those top consigners who is producing hogs suitable for Frank and his west coast trade to write an article on how he breeds and feeds those hogs. I am sure there would be no similarity between the way he does the job and the way Frank says

(*Continued on page* 134)

4 TRACTORS IN ONE!

More than a big-capacity, general-purpose tractor—*more* than a handy man tractor—*more* than a clearing tractor —*more* than an earthmoving tractor—a CAT track-type Farm Tractor is *all* of these, and *much more!*

On general farming jobs, a Cat Diesel Tractor puts your seedbed fitting, harvesting, and heavy pulling jobs on an assembly-line basis. Here's traction and flotation to pull up to twice as big loads as ordinary farm tractors of similar horsepower . . . work capacity to accomplish up to 60% more in typical soft seedbeds . . . stability for operation over rough ground and on steep hillsides.

As a handy man, a Cat Diesel Tractor brings you unequalled versatility. Economical diesel power handles belt and PTO jobs. Manure to load in soupy feedlots? Try the Tool Bar loader. Hardpan cutting yields? Deep-till with Cat Tool Bar equipped with Subsoilers or Chisels —and cut your equipment investment. Do you have pastures to renovate . . . ditches to dig . . . land to grade for drainage, irrigation or better farming practices? The answer is a Cat Diesel Tractor!

Virtually every farmer has some land clearing problem or soil condition to correct—whether it is digging out boulders, clearing trees and brush, forming land, building terraces and other jobs. Caterpillar track-type Tractors —any size—will do them all!

How does your present tractor measure up to these specifications? If it will do only one or two of these jobs, you're getting along with 50% of a tractor! Your Caterpillar Dealer will prove it! See him soon. And write us for your free copy of "Tires or Tracks . . ." Address: Dept. FQ98, Caterpillar Tractor Co., Peoria, Ill., U.S.A.

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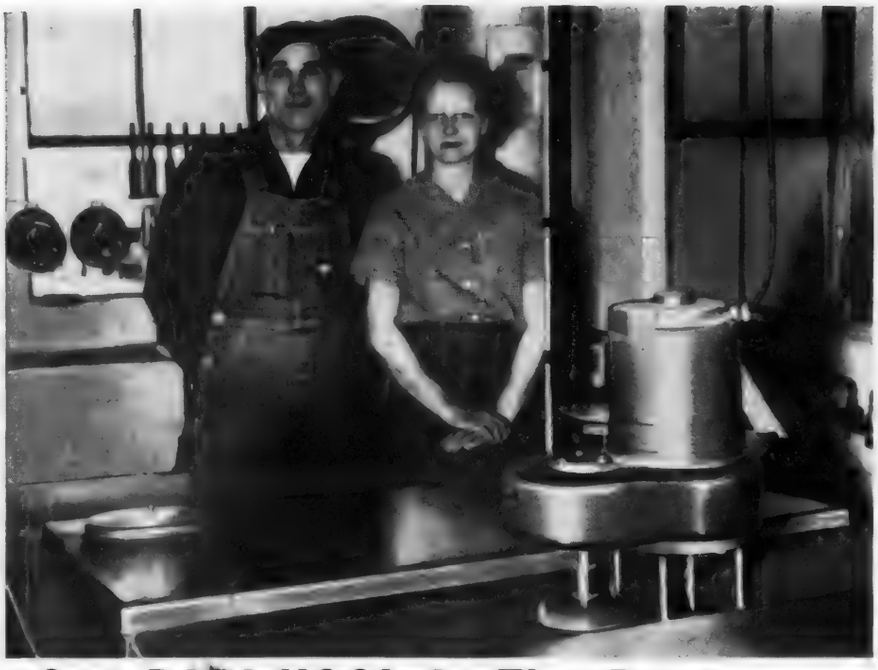
SOIL, WATER AND TIME
WITH CAT DIESEL TRACTORS

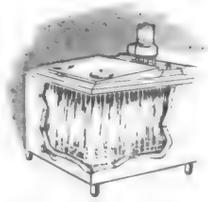


"Our DARI-KOOL Is The Best Investment We Ever Made!"

Write MR. & MRS. ELMER HABERMAN, Cutler, Illinois

"A tornado struck our area December 18, 1957, and we were without electric power for 14 hours. Our Dari-Kool, with its large reserve ice bank, kept our milk safely cold during this emergency. Many dairymen in the tornado area with direct expansion coolers had to "can-off" their milk into milk cans to save it. We feel that our Dari-Kool is the best investment we ever made. The more we work with our Dari-Kool the better we like it. We have never seen any cooler we like better."

(signed) Mr. & Mrs. Elmer Haberman



DARI-KOOL'S ICE-BANK AND GLACIAL WATERFALL COOLS FASTER, WITH NO FREEZING

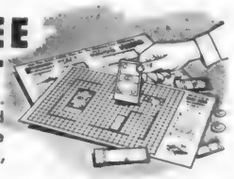
DARI-KOOL'S ICE-BANK PROTECTS YOUR MILK DURING ELECTRIC POWER FAILURES

DARI-KOOL TANKS ARE MUCH EASIER TO CLEAN

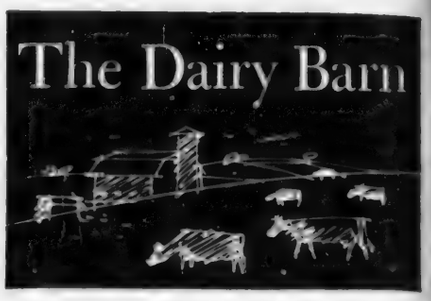
DARI-KOOL MEETS ALL 3A STANDARDS

Send today for your **FREE MILKHOUSE PLAN KIT**

Plan your milkhouse with this easy-to-use kit. Sketch outline of your present or proposed milkhouse on the graph sheet. Then arrange scale model coolers, wash tanks, water heaters, etc., to fit your plans.



DAIRY EQUIPMENT CO., Dept. 118, Madison, Wisconsin



Work and Numbers A University of Minnesota study shows the labor requirements of a thirty-cow herd are not three times that of a ten-cow herd. In a one-year study, economists at the college found the time needed per animal dropped as the number of animals increased. The larger herd took only twice the labor of the ten-cow herd.

The study also showed more than half the labor time in summer was for milking, whereas milking time in winter fell to about one-third of the total time spent with the animals.

Imitation Udder The R. L. Kuss Company, Findlay, Ohio, manufactures a novel addition to calf feeding. This is the Nurs-A-Calf, a flexible plastic sac of three quart capacity, with a nipple on the bottom. This flat-when-empty bag,looking rather like a rubber hot water bottle except for wide neck and cap, hangs on the wall and allows the calf to butt and tug without damage. The sac is splash-proof, and the makers claim its special nipple prevents sucking air.

Rubber-Wrapped Bulk Milk Collapsible rubber containers, holding 2,400 gallons of milk, are being used in Oregon to haul milk from the farm to processing plants. They are called Sealdtanks, and were developed by the U. S. Rubber Company. The containers, looking like over-size toothpaste tubes, are carried in standard refrigerator trucks. When empty, they are rolled compactly and carried in the front section of the vehicle. The truck is then able to haul eggs, butter, and cheese on the return trip. The users claim they cut the farmer's hauling costs 20 per cent.

Pasture or Corn? A dairyman asks himself the question, "Is my stock good enough to make more acres of pasture pay?" Studies have shown top-producing livestock play a big part in making more hay and less grain a profitable change for milk farmers.

A recent Ohio study of shifting corn land to meadows provided a rule-of-thumb to determine whether additional meadows are more or less profitable than the corn they replace. On a farm where dairy cows consume the additional hay and pasture, the comparison is simple. If corn yields are 40 bushels an acre, hay yields two and a half tons from two cuttings, and the

(*Continued on page* 131)

Carl Alpers, on the left, who has three M&W Piston equipped John Deere tractors on his 480 acres, didn't doubt for a minute that Maynard Schleeter knew what he was talking about.

"...but they changed their tune when I proved it by Dynamometer test!"

It *is* hard to believe that a 16-year old tractor with a smaller engine could possibly develop as much horsepower as a new and bigger Farmall. And Maynard Schleeter who farms 600 acres of deep dark dirt just north of Colfax, Illinois, took quite a bit of good natured kidding about it until he proved he was right by actual Hydra-Gauge Dynamometer test.

But let him tell you about it in his own words:

"Five years ago I put M&W Add-POW'R Pistons in my 1941 M tractor. They jumped the horsepower from 39 to 51, which was a good 10 more than it had when brand new.

"This spring, with more land to farm, I bought a new Farmall 450, and it's quite a tractor. But, about the same time, I had a set of M&W's new Turbo-Dome Pistons put in the old M. And here's where I had to take my friends in for a Dynamometer test to convince them that the old M was actually developing 3 more horsepower than my new tractor. And the new one has a much bigger engine.

"But that wasn't the end of it. While they were running the test, they put one of M&W's new air filters on the old M and it gave it a boost of another 2 horsepower!

"So, starting with a 16-year old tractor that developed about 40 horsepower when new, I've now got a real work-horse with more horsepower than my new one right off the production line."

And Mr. Schleeter adds that in stiff plowing this fall, his M plowed lick for lick with the 450 and did it on 4 to 5 gallons less fuel a day. The reason for this fuel economy is, of course, that his M has less piston displacement—a 4-inch bore compared to 4⅛-inches.

Increased piston size, alone, *isn't* the answer to increased horsepower, but M&W's exclusive Turbo-Dome design *is*. They squeeze every ounce of power from every drop of fuel like no other piston in new tractors or old.

M&W Turbo-Dome Pistons will increase the horsepower and operating efficiency of *your* tractor—*regardless of make or model*. See your M&W Tractor Products dealer for M&W Turbo-Dome Pistons specifically engineered for your tractor. Make a "before" and" after" Dynamometer test. You *can* have 1960 tractor performance from your tractor TODAY!

M&W TRACTOR PRODUCTS

3911 GREEN STREET, ANCHOR, ILLINOIS

World's largest manufacturer of the most complete line of tractor improvement products for the betterment of agriculture.

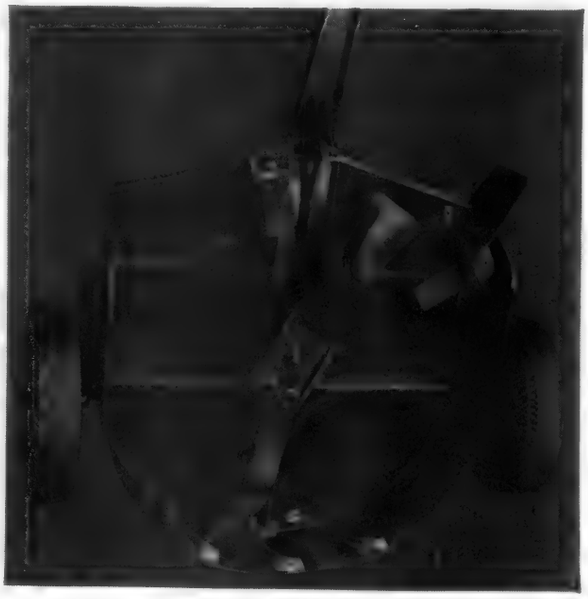
TURBO-DOME PISTONS • ADD-POW'R PISTON RINGS • LIVE POW'R PTO • LIVE HYDRAULIC SYSTEMS • ADD-POW'R "DRY-TYPE" AIR FILTER • 9-SPEED TRANSMISSIONS • 12-VOLT IGNITION SYSTEMS • INSTANT RESPONSE GOVERNORS • HI-LIFT ROCKER ARMS • HYDRA-GAUGE DYNAMOMETER • SAFETY-LOCK THROTTLES • ROOT SAVERS • NO-CLOG WHEEL CLEANERS

Toughest shredding jobs a breeze for Servis Gyros

Tough, fibrous, heavy, these okra stalks are 3" across, 6' high. The Servis Gyro-57 pulverizes them easily, steadily, without a hint of clogging.

Here's why...

Tremendous blade momentum gives cutting power far exceeding simple PTO action. Intermeshing blades chop exceptionally fine. Fan blades, suction skirt, deflector ribs keep stalks in the air.



See it demonstrated by your Servis dealer. Write for his name.

Servis EQUIPMENT CO. DALLAS, TEXAS

Servis Equipment Company
1000 Singleton Blvd.
Dallas, Texas

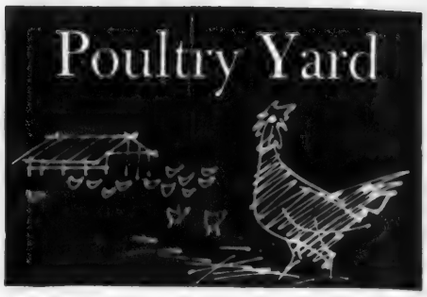
Dept. FFQ

Please send me information on items checked.

Name_____
Address_____
City_____ State_____
Type Tractor Owned_____

- ☐ Gyro 84 Brush Cutter (Pull-type)
- ☐ Gyro 66 or 57 Shredders (Pull-type)
- ☐ Gyro 66 or 57 Shredders (Lift-type)
- ☐ SC-80 Rotary Mower
- ☐ E-60 Clipper
- ☐ Pasture Renovator
- ☐ B & W Row-Weeder
- ☐ No. 7 Angledozer (Row Crop Tractors)
- ☐ Dump Type Rake
- ☐ Hudson Automatic Row Marker
- ☐ 3-Way Ditcher-Terracer Blade
- ☐ Heavy Duty 3-Way Ditcher-Terracer Blade
- ☐ Model "I-H" Whirlwind Terracer
- ☐ Model "F" (3 pt. lift) Whirlwind
- ☐ "Sur-Stan" Press Wheel

"Make Pay Dirt Pay More — Join Your Soil Conservation District"



Broiler Millions The zooming broiler business which has persuaded figure-happy laymen to ignore the still large remainder of the poultry industry, has taken a step into industrial areas.

Factory workers, encouraged by the recent recession, have taken up broiler production, part time, and small scale. In and around the larger cities they have a ready-made local market for their product, and automatic feeders and other mechanization has lessened their fear of being tied to the birds day in and day out. Old buildings are easy to adapt to automation, and a city farm can be run in spare time.

However, such suburban production will have to grow apace if it is to rival the specialized areas of the broiler. The three top-producing states last year were Georgia, Arkansas, and North Carolina, and ten states produced 70 per cent of all broilers. Furthermore, the USDA estimates only three to five per cent of all broilers are produced independently, with the grower taking all the financial risks.

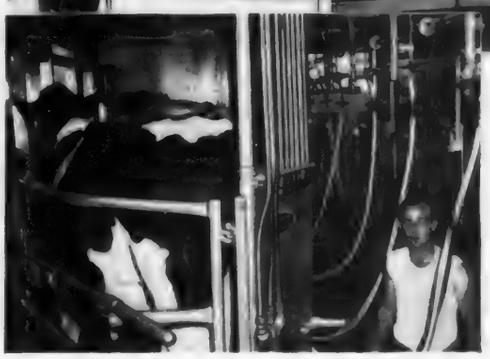
Trans-oceanic Sperm Trip A shipment of chicken sperm to Israel from Maryland recently, is the first breakthrough in this field. Using a new storage method, Dr. Frank H. Wilcox of the University of Maryland, obtained 38 per cent fertility of eggs produced. The sperm was used 38 hours after being taken. In all previous experiments, storage of semen for more than 24 hours has caused almost complete loss of fertilizing power.

The semen was shipped in ice, and the method could be used to reach anywhere in the world with air service. Since semen cannot transmit the diseases of poultry into clean areas, as live birds may, the development could be of great value.

Producers Association A national organization for poultry producers has been granted a charter, and is actively encouraging membership. This is the U. S. Poultry and Egg Producers, Inc., which is, according to the president, Robt. W. Scott, essentially an organization of organizations. Area associations of bona fide poultry or egg producers join the national association, and appoint a director to the board. The organization hopes to build sufficient revenue to be able to present the views of the poultry industry to Congress on such bills as affect them. The offices are at 362 West Lee Street, Greensboro, North Carolina.

More and More CHORE-BOY Complete Milking Plants In Operation

Mr. Vernon Cassens—and his sons, Bob, left, Henry, right.



As more and more Chore-Boy One-Man Milk Production Plants go into operation, the many advantages of this complete Chore-Boy package are demonstrated over and over again.

Chore-Boy's Ready-Made Milking Parlor and Milk Room is specially designed for efficient Herringbone operation. The building is compact, durable and well insulated. It has Thermopane windows, electric ventilation and vacuum-operated doors. This past severe winter proved the Chore-Boy Building to be drier and warmer than other types of parlors.

Before you buy you know the complete cost — and unless you do your own construction work — you'll find it costs less than locally constructed buildings, and it is certain to be more satisfactory. Quick delivery of the plants can be made to any section of the country (except the Pacific Coast).*

Buckland Brothers of Richmond, Indiana, have used a plant since September, 1957. They say, "We like it better every day!"

**We now plan on a West Coast Fabricator (to be announced soon).*

CHORE-BOY HERRINGBONE MILKERS For Large and Small Herds

Regardless of whether you get the Chore-Boy Ready-Made Building, you surely need a Chore-Boy Herringbone Milking System. Whether your herd is large or small, this system will soon pay for itself in increased production and time saved. It will also put more pleasure and profit in your dairy operation.

"CHORE-BOY Has Changed Dairying From Drudgery To A Pleasant Operation!"

Writes MR. VERNON CASSENS, Route 26, Polo, Illinois

"We made a serious study of our dairy operation and decided that we would have to get into the business right — or get out of it. After seeing a Chore-Boy Herringbone System in operation we decided that this was the right way to milk cows. We also decided to go all the way with Chore-Boy and bought the complete package: building, Herringbone stalls, auger feeders and pipeline milkers. We are very happy with our decision — as our plant is exceeding expectations. We now handle more cows and do it easier and better. Chore-Boy changed dairying from drudgery to a pleasant, profitable operation."

The ideal, one-man system consists of a "double-six" stall arrangement — with 6 milker units. This system enables one man to milk and feed 60 cows per hour — and do a fine job of milking. Larger 2-man systems are provided for large herds. For smaller herds a single row of 6 to 10 stalls with 3 to 5 milker units provide faster, better milking, per milker unit, than any other system.

Your Chore-Boy "Know-How" Man will be pleased to assist you in developing the ideal system for your specific needs.

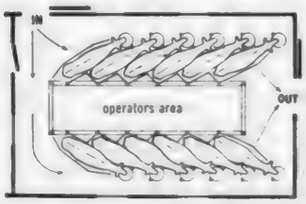
Only CHORE-BOY Provides Complete HERRINGBONE MILKING SYSTEMS

Only Chore-Boy can provide complete milking systems with both Herringbone stalls and pipeline milkers. This is important since one company and one dealer is responsible for its operation. We know from experience that the stalls and pipeline system must be designed to work together for best results.

Chore-Boy Herringbone Stalls position the cows properly — (this is important). An arch above the cow's head prevents feed wasting. The auger feeder is positive, accurate and far superior to gravity feeding. Strong, durable splash shields protect the operator.

Chore-Boy's low-vacuum milking is better for udder health and helps eliminate a major cause of mastitis. Only one pulsator provides uniform milking on all units. Cleaning is fast and "in-place" and only ⅓ as much hot water and detergents are required.

CHORE-BOY PRODUCTION-LINE MILKING



The Herringbone system applies the industrial principle of bringing the work to the worker. This eliminates walking and enables the operator to milk 2 to 3 times as many cows as is possible with side-opening or walk-thru stalls.

It is impossible to apply fast production line principles with side-opening or walk-thru stalls because the cows are handled individually, standing end to end. One operator can handle only 3 milker units.

With Chore-Boy Herringbone Stalls the cows are handled in groups. They are angle-parked with no gates between them. The operator is never more than 3 feet from the next cow's udder. One operator can handle 6 milker units and do a fine job of milking.

PROFIT BY CHORE-BOY "KNOW-HOW"

Farmer Feeder entered the milking machine business with a fresh approach and a new look. We decided to specialize in pipeline milking. While we too, have excellent pail milkers, we know that they are slow, back-breaking and laborious — and that dairymen require a better, faster method of milking. In designing our pipeline milkers we aimed for simplicity of construction and operation, plus ease of cleaning and good milking. We aimed to produce the best milker on the market. In addition to good milking we took into consideration the proper feeding, handling and housing of the cows. The rapidly growing family of Chore-Boy users is evidence that we have succeeded. We believe no other company can approach Chore-Boy's "Know-How".

SEE YOUR CHORE-BOY "KNOW-HOW" MAN

Last Fall a new Chore-Boy Training Center was erected next to our plant at Cambridge City, Indiana. Since its opening hundreds of Chore-Boy dealers and their service men from all parts of U. S. and Canada have taken intensive training in the operation and installation of our equipment as well as in the handling, feeding and housing of cows.

As a result of the "Know-How" these men have received they are qualified to counsel with dairymen on dairy farm operation. These men are more than dealers or service men — they are Chore-Boy "Know-How" men. They are at your service.

- PIPELINE MILKING SYSTEMS OF ALL TYPES FOR MILKING PARLORS AND AROUND-THE-BARN
- MILK RELEASERS

CHORE-BOY LOW-VACUUM MILKING SYSTEMS

- LONG AND SHORT TUBE PAIL-TYPE MILKERS
- COMPLETE LINE OF DAIRY FARM SUPPLIES AND EQUIPMENT

For Information — Write Dept. 15 • Profitable Dealerships Available

FARMER-FEEDER COMPANY INC. • Cambridge City, Indiana

© Farmer-Feeder Co., Inc., Cambridge City, Indiana

Wherever you're farming, the availability of competent pump dealer service is of prime importance; nothing can cripple your operation faster than a water supply failure. Because Peerless recognizes this, *there's more to a Peerless sale than the contents of the shipping crate*—there is SERVICE. *Competent, complete, and always available, it's the kind that can mean the difference between a long, productive pump life and a short costly one.* Remember, whatever your farm pumping need, your nearby Peerless dealer has the right answer for it in the complete Peerless line. Look him up soon. You'll find his pumps are the finest and he delivers service to match.

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Please send me these Peerless Brochures:

☐ Deepwell Turbine Pumps ☐ Deep & Shallow Well Jet Pumps

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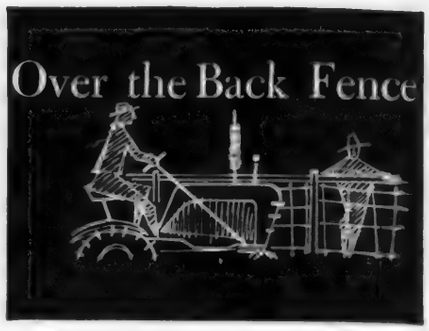
"AMERICA'S FIRST LINE OF FARM PUMPS"



Look, Ma, No Hands Behind the Ag Engineering building at the University of Nebraska, a tractor went through its maneuvers, stopped, started, turned, shifted gears, backed up, lowered and raised its cultivators without a driver in the seat. The machine, an Oliver, was neither haunted nor running wild; it was controlled by James Pickon, an engineer, from a small, very high-frequency radio. For some of us, this looks like the ideal way to do the plowing from the front porch; for more energetic folk it opens the way for driving several pieces of equipment in the field at the same time.

Vegetable Specifics We came across some health hints the other day while thumbing through the *Zion's Home Monthly* for December 1, 1893. For those who suffer from rheumatish or insominia, we publish the piece in full: "Spinach has a direct effect upon the kidneys. The common dandelion, used as greens, is excellent for the same trouble. Asparagus purges the blood. Celery acts admirably upon the nervous system, and is a cure for rheumatish and neuralgia. Tomatoes act upon the liver. Beets and turnips are excellent appetizers. Lettuce and cucumbers are cooling in their effect upon the system. Onion, garlic, leeks, olives and shallots, all of which are similar, possess medical virtue of a marked character, stimulating the circulatory system, and the consequent increase in the saliva and the gastric juice which promotes digestion. Red onions are an excellent diuretic, and white ones are recommended to be eaten raw as a remedy for insomnia. A soup made from onions is regarded by the French as an excellent restorative in weakness of the digestive organs."

Kindness of A Deed H. B. Fox, of Taylor, Texas, a man of little modesty, but of considerable imagination, wrote us the other day about his kindest deed. He said:

I was over at my neighbor's Debbs Craig, who lives a mile from my Johnson grass farm, last night watching television and the type of program got me to thinking. The program was a give-away show and I'll admit all the winners' faces glowed with pleasure when they won, in fact they were hysterical, but I have an idea they may not be quite as happy when they

(*Continued on page* 135)

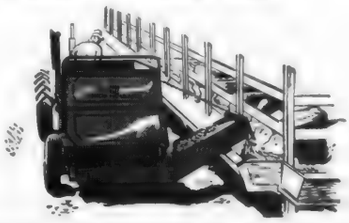
Cut your spreading trips in half

...with New Holland's 130-bushel spreader

CONVERTS
for year-round use

You can throw away your silage fork when you use the "330" with forage sides for filling silo. Beaters stay in to shred even grass silage, feed it to blower or pit uniformly.

Bunk feeding is easy, fast, inexpensive with an Automatic Bunk Feeder Attachment available at slight extra cost. You can feed out on the move, unload in 4 minutes or less.



THE RUGGED "330" helps you spread even your farthest fields with as few as half the trips! For this spreader totes a *big* load and works fast with a minimum of effort on your part.

The "330" also gives you greater stability on rolling land, because its close-to-the-ground construction means a lower center of gravity. Plenty of top-side clearance lets you run right under barn cleaners. Special construction and extra reinforcement have eliminated the old-fashioned get-in-the-way arch.

Now every aspect of loading and spreading is simple and more convenient than ever before—with a New Holland "330". See it at your New Holland Dealer.

NH NEW HOLLAND

"First in Grassland Farming"

New Holland Machine Co., 909 Oak Street, New Holland, Pa.
Please send me free catalog on Model 330 (130-bushel) spreader.

Name_____

Address_____

City_____ State_____

USE A FITCHBURG *Farm* CHIPPER TO MAKE LOW-COST

- BEDDING
- LITTER
- MULCH

Brush removal is always a tough farm chore . . . hard to load . . . difficult to handle. But you take the hard work out of hauling brush with a Fitchburg Farm Chipper. Brush can be quickly reduced to easy-to-haul wood chips. Chips used to make manure, or as mulch can make brush removal profitable on your farm, too. A FITCHBURG FARM CHIPPER WILL WORK FOR YOUR FARM . . .

. . . IN POUND YARDS:

Wood chip bedding stands up better in wet spots. Pound yards bedded with wood chips cake less for faster loading, easier spreading, yet the chips hold up longer near gates and water troughs. Absorbent wood chips will carry plant nutrients to crop land . . . supply crops with a humus that lasts. Seed beds crust less for better germination . . . tight ground holds moisture better . . . stays open longer.

. . . IN ORCHARDS:

Pruning disposal in orchards combines into one simple, soil building operation when a Fitchburg Farm Chipper is used. Tree trimmings need no longer be hauled. Brush can be fed into the chipper and the chips blown around the trees for mulch. This moisture-holding mulch can be worked into the ground with cover crops or left for weed control.

. . . DAIRY BARNS AND POULTRY HOUSES:

Tough absorbent wood chips really stand up in dairy barns and poultry houses. Your Fitchburg Farm Chipper will cut poultry production costs, reduce dairy barn straw requirements by producing litter and bedding from your wood lot. At clean-up time, or whenever clean bedding is needed, your Fitchburg Farm Chipper will chip bedding or litter quickly at low labor cost. Wood chips can be the answer to your difficult bedding and litter problems—A Fitchburg Wood Chipper will supply wood chips quickly and easily.

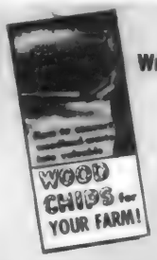
YOUR BEST FARM BUY IS

A FITCHBURG FARM CHIPPER:

The Fitchburg Farm Chipper is engineered for rugged, all-day service. Normal lubrication, with periodic sharpening of the tough chrome steel blades, keeps the Chipper on the go. Thanks to the Safety Spring-Activated Feed Plate, standard equipment on all Fitchburg Chippers, the Chipper adjusts itself instantly to different size wood to give safe, smooth chipping that keeps a Farm Chipper way ahead of clean-up crews. The economy and speed of operation will soon return the Fitchburg Chipper's price of $650 for the mulch Chipper; $960 for the bedding Chipper.

. . . WITH A ONE YEAR GUARANTEE:

The one year guarantee given with every Fitchburg Farm Chipper assures you peace of mind and guaranteed economy of operation. Find out how a Fitchburg Farm Chipper will save time, labor, and money on your farm.



Write for "WOOD CHIPS"

This free booklet gives complete details...see how other farmers use the Farm Chipper . . . compare the facts with your farm.

FITCHBURG ENGINEERING CORPORATION
Fitchburg, Massachusetts, Dept. FQ-98

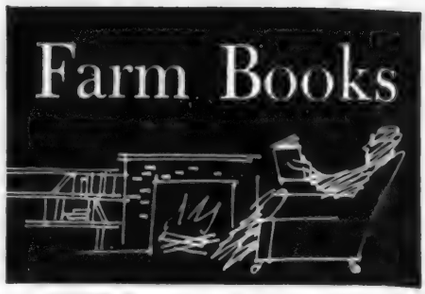
Send my free copy of "Wood Chips for Your Farm!" to:

Name

Address or R.F.D.

Town State

We have (Make and Model) Tractor



The Cattleman, by Mari Sandoz. Hastings House, New York. $6.50.

It was inevitable that a westerner like Mari Sandoz should come up with a book about the men and the critters who first put the great plains to economic use. Twenty years ago she turned out a colorful biography of her amazing pioneer father in her book, *Old Jules*. Then came such stories of the plains as *The Buffalo Hunters, Crazy Horse* and *Winter Thunder*. And now in her dramatic style she traces the history of the cattle business beginning with the herds of Coronado moving across the Pecos and concluding with the big blizzard in the Texas Panhandle in the spring of 1957.

The story has all been told before yet it seems to have the same fascination for the western writer that Hamlet has for the actor. Mari Sandoz has done hers well. She is rough on such characters as Wild Bill Hickock, Wyatt Earp and Bat Masterson, and she takes a lot of the glamour out of the cow business. All told, it's mighty good reading and a lot of fun for anyone with a liking for cattle and horses and the rugged individuals who made and lost fortunes with them.

Robert Bakewell, Pioneer Livestock Breeder, by H. Cecil Pawson. Crosby Lockwood & Son, Ltd., London, England. $3.75.

No all-time summit conference on agriculture could be convened without the presence of Robert Bakewell. But an even more amazing measure of the reputation of this fat little Leicestershire farmer was his fame during his own lifetime. In seventy years on the same small farm at Dishley, Bakewell built a following for his methods and his stock that enabled him to name his prices.

The author, a professor of agriculture at Durham University in England, is modest in his claims for Bakewell. Yet the facts are outstanding. This once unknown farmer let his first ram for a season for about $2.50, and within twenty years was commonly charging $280. His famous ram, "Two Pounder," let for $1,120 for four months. Bakewell's leasing of sires was his strength, for it enabled him to progeny test his rams and retain only the best sires for his own flock.

The Bakewell methods developed the truly international breeds of livestock, of which only Friesian cattle and the Merino sheep did not originate in Britain.

(*Continued on page* 136)

For Bigger Better Crops Next Year

Test Your Soil NOW

DOUBLE YOUR INCOME

No Fertilizer | Lacked Phosphate | Needed Potash | Fertilized Correctly

10-Fold Increase in Wheat

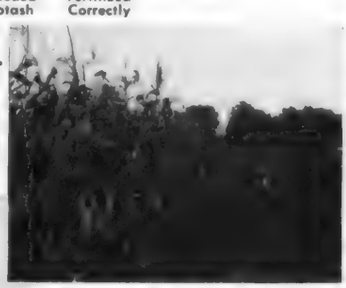
Without the right fertilizer in the soil, even the best farmer cannot prevent crop failures.

Amazing tests on wheat by a leading ag college show how yield increased ten-fold with proper fertilizer.

A vigorous root system as well as lush, heavy top growth was the result of correct fertilizer guided by soil tests. Even when soil lacked only phosphate or potash, yield dropped nearly 40%.

Bumper Yield—or Crop Failure!

The Agricultural College experimental field at right shows the gain from using correct fertilizer YOUR soil needs.



this corn grown on balanced soil | one missing element caused this failure

The puny plant and deformed nubbin at left are from a field not properly fertilized. Rotted joints and roots made the corn lodge.

Using right fertilizer produced sound stalks and perfect ears as pictured.

BETTER CROPS Guarantee

YOU TAKE NO RISK

We are so certain you'll get bigger yield, you can send your Kit back anytime within a year if you don't, and we'll refund your money.

If desired, use our Easy-Payment Plan (see coupon).

Fall Is the Most Profitable Time to Test the Soil

It's Easy to Do

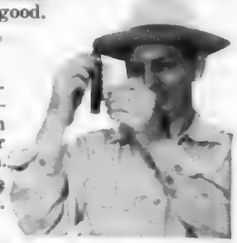
You can make tests anywhere, anytime—even out in the field. Get your answers RIGHT AWAY, with the Sudbury Soil Test Kit.

Make Every Dollar Spent for Fertilizer Bring Back up to $10 in Extra Yield

Now is the best time to find out what your soil needs to produce bumper crops in every field! These simple 10-minute tests tell how much fertilizer each crop used up this year. The soil is now mellow, easy to take samples, ideal for testing.

Spreading fertilizer this fall takes less time—both weather and soil are more favorable. You save valuable time next spring, avoid bad weather planting delays. In some areas over 40% of all farmers now apply fertilizer in fall instead of spring. Crop experts say putting it on in the fall is just as good.

Save Up to $15 an Acre on Fertilizer



Besides getting bigger yields, you'll save money on fertilizer—use only what your soil needs. Guessing costs plenty—wastes time and money. Fertilizer is the biggest expense on any well-run farm. Your Sudbury Soil Test Kit makes it your best investment—brings you bigger crops, cuts costs way down.

A Pennsylvania farmer was going to spend $700 for lime but not a single field needed any; some already had too much. He not only saved $700, he got better crops without it.

No Knowledge of Chemistry Needed

EASY AS READING A THERMOMETER

So simple, anyone can use it. Even your first tests will be accurate and reliable. Takes only 10 minutes, costs less than 10c a test. No samples to mail, no waiting for reports.

Farmers deLuxe Soil Test Kit

This is the famous Farmers deLuxe Kit, complete with everything for hundreds of tests. More valuable than all your stock and tools! Shows right amount of nitrogen, phosphate and potash for each field. Also whether lime is needed (pH) and how much. Lifetime welded steel chest with carrying handle—built for heavy duty. Weighs only 12½ lbs. Easy instructions show needs of 225 different crops. **Big Value, only $29.95.**

SEND NO MONEY

We'll mail C.O.D. plus postage. Or send check and we'll pay postage, saving you from $1.91 to $3.55 in postal charges.

Money-Back Guarantee

If you are not completely satisfied with your Soil Test Kit, return it in 10 days and **get your money back!**

FREE BOOK

If you send check, we'll also include the valuable 64-page book on farm management, "Our Land and Its Care," **FREE!**

Order Right Away!

FREE TRIAL

425,000 Users Can't Be Wrong!

A.D. of Indiana nearly doubled his corn yields as a result of testing his soil. He also gets 30% more wheat and soybeans per acre.

G.H. of Ohio "Have made many tests; like its simplicity and accuracy. Worth 1000 times its cost on my 320 acres; found them low in phosphate."

S.G.H. of Michigan "guessed" his potato field had enough potash but needed nitrogen. Tests showed he was wrong. He saved the nitrogen, bought potash and doubled his yield.

A.F.B. of Iowa increased his bean yield 50% by correcting phosphate and potash deficiencies his Sudbury Soil Test Kit revealed.

W.L.D. of Pennsylvania saved $400 on fertilizer. "The Kit has paid for itself over and over again." That's real satisfaction!

R.S.G. of Indiana tested his soil and discovered potash was badly needed. He has increased his corn yield 20%! He also reduced fertilizer costs by using only what his Sudbury Soil Tests showed was needed.

Hardware, Seed, Grain and Farm Supply Stores: Serve Your Customers by Carrying this Essential Aid to Better Farming.

SUDBURY Soil Test Kits

SUDBURY LABORATORY, Box 97-K, South Sudbury, Mass.

World's Largest Makers of Soil Testing Equipment

SUDBURY LABORATORY
Box 97-K, South Sudbury, Mass.

Send me the Farmers deLuxe Sudbury Soil Test Kit at the special low price marked below:

☐ Enclosed is $29.95; send postpaid; include free book, "Our Land and Its Care."

☐ Send C.O.D. plus postage.

Name.....

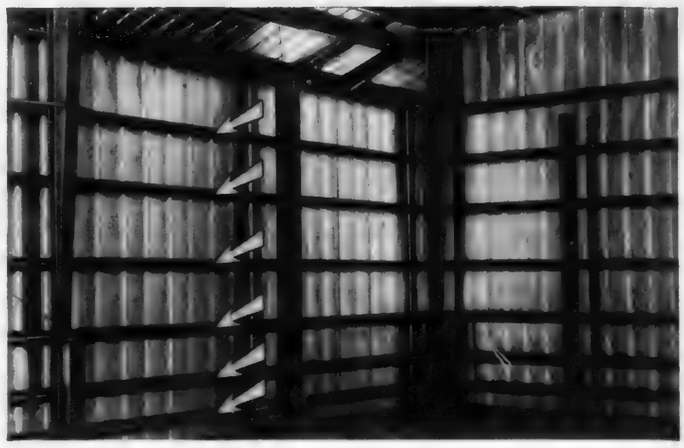
R.D. or St......

P.O......*Zone*....*State*.....

☐ Send on Easy-Payment Plan—I'll pay mailman $4.95 plus postage, then 4 monthly payments of $6.75 each.

Butler guide to safe flat storage

An ordinary building just won't do. Choose one specially engineered for grain storage—built by a company which knows grain storage problems. Note how the basic structure above—nearly ready for paneling—provides vertical steel support every ten feet, clear around the building.



Extra horizontal support is important too. Steel Z-girts, bolted to the verticals, should be closely spaced to further strengthen sidewalls against the tremendous pressures grain builds up. Butler grain buildings contain at least three times as many Z-girts as Butler's heaviest industrial building.

This you know: structural strength alone won't protect grade. Your cover must be tight, must seal moisture and vermin out. Cover panels must be die-formed to assure perfect fit, should bolt securely to every purlin and girt they connect to—with weatherseal compound between each panel lap.

You should be able to order your building in exactly the size you need. Your building should be easy to load and unload . . . economical to expand. And, your building should have features that will permit you to use it for other farming purposes, should your future practices change.

They say your grain is only as good as the building you keep it in and this makes a new flat storage building something special. So rather than take chances with your grain, follow the Butler Guide to Safe Flat Storage. Better yet, buy a Butler building because this guide is based on the actual construction of the building that outsells all other makes . . . a Butler. Strength is built right into it, from the strong steel frames to the tough, die-formed cover. It is a building especially designed and engineered for its job by people who know the grain storage building business. Like a catalog about this "finest flat storage structure in the world"? Ask your Butler Builder, or write us direct.

BUTLER STEEL PRODUCTS

BUTLER MANUFACTURING COMPANY

7378 East 13th Street, Kansas City 26, Missouri

Manufacturers of Buildings • Equipment for Farming, Dry Cleaning, Oil Production and Transportation, Outdoor Advertising • Custom Fabrication

Sales offices in Los Angeles and Richmond, Calif. • Houston, Texas • Birmingham, Ala. • Atlanta, Ga. • Kansas City, Mo. • Minneapolis, Minn. • Chicago, Ill. • Detroit, Mich. Cleveland, Ohio • Pittsburgh, Pa. • New York City and Syracuse, N. Y. • Boston, Mass. • Washington, D.C. • Burlington, Ontario, Canada

it must be PIONEER

As the national corn acreage goes down . . . PIONEER sales go up and up. In fact sales of PIONEER have MORE THAN DOUBLED in the past ten years. And in spite of the soil bank . . .PIONEER Sales this Spring were the greatest in all history.

For the TOP PROFIT from your corn acreage . . . plant PIONEER.

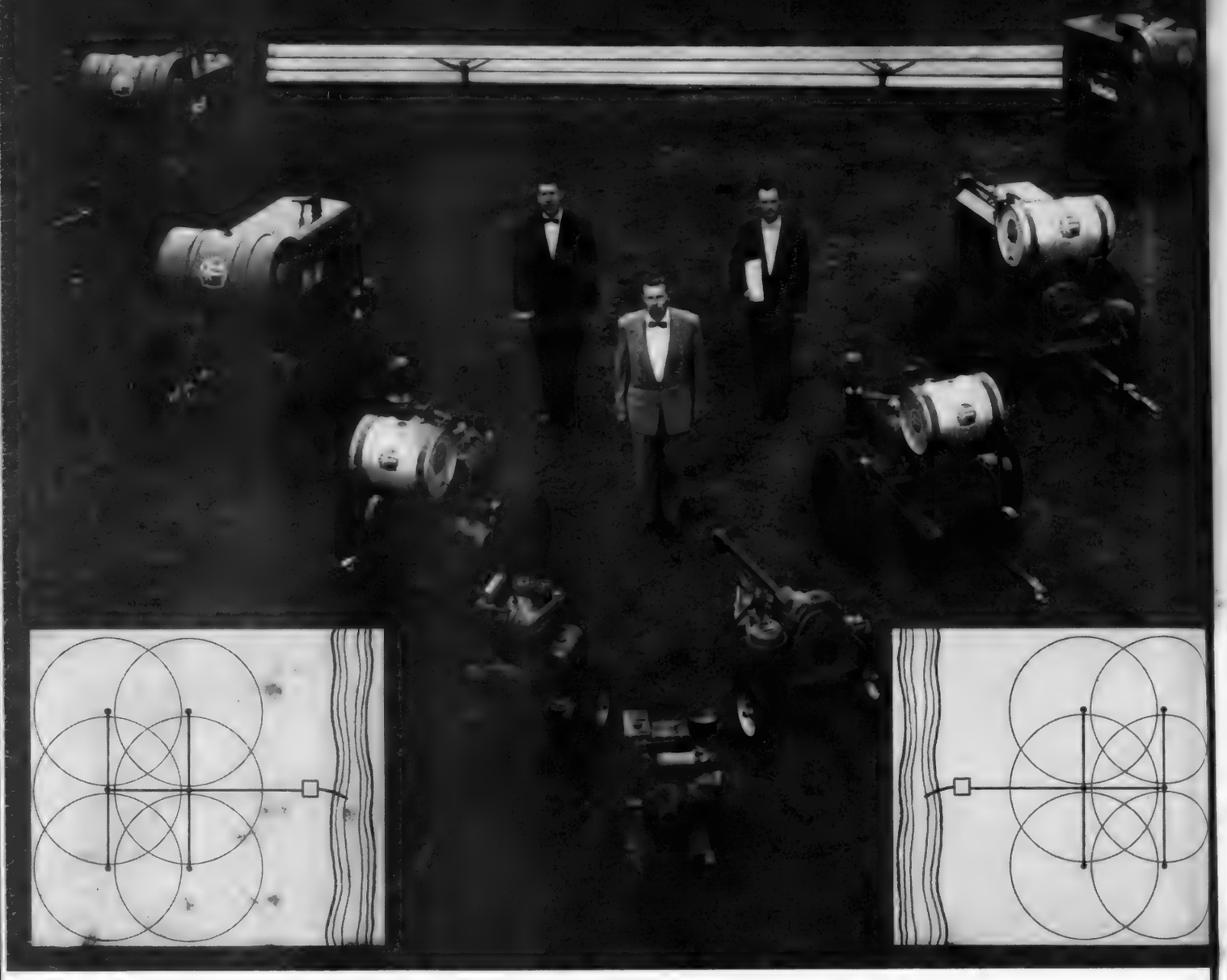
PIONEER Hybrid Seed Corn is produced by the following companies.

Garst & Thomas Hybrid Corn Co.
Coon Rapids, Iowa

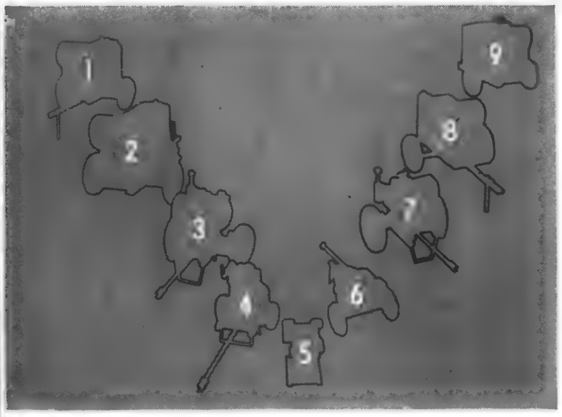
Pioneer Hi-Bred Corn Co.
Des Moines, Iowa

Pioneer Hi-Bred Corn Co.
of Illinois; Princeton, Ill.

Pioneer Corn Co., Inc.
Tipton, Indiana



ENGINEERED IRRIGATION PAYS OFF!



Nine Popular Gorman-Rupp Sprinkler Irrigation Pumps:

1. Model 55A-265—500 gpm @ 155 lbs—950 gpm @ 75 lbs.
2. Model 54B-IND30—325 gpm @ 143 lbs—850 gpm @ 83 lbs.
3. Model 54A-VG4D—225 gpm @ 95 lbs—550 gpm @ 50 lbs.
4. Model 53M-TFD—140 gpm @ 70 lbs—300 gpm @ 35 lbs.
5. Model 6201—80 gpm @ 80 lbs—175 gpm @ 40 lbs.
6. Model 64AG—Varies with power take-off hp.
7. Model 53H-VF4D—225 gpm @ 85 lbs—400 gpm @ 40 lbs.
8. Model 54M-CJ3A—250 gpm @ 105 lbs—600 gpm @ 55 lbs.
9. Model 55M-IND56—1350 gpm @ 70 lbs—600 gpm @ 160 lbs.

It takes a lot more than a pump, some pipe and sprinklers for efficient irrigation.

It takes irrigation engineering know-how!

What works on your neighbor's place may not be best for you. Water source, farm topography, soil, crops must all be considered in selecting the *right* pump, the *right* piping, couplings and sprinklers for your system.

Gorman-Rupp makes *only* pumps (50 different models to meet varying capacity, pressure, fuel or power requirements) but our interest doesn't stop there.

That's why we insist that *all* Gorman-Rupp dealers handle *all* the parts of the sprinkler system, backed by the irrigation engineering know-how to fit these parts together in the right combination to work best for you.

Be sure you get an *engineered system*. Thousands of farmers can testify it pays off for them.

THE GORMAN-RUPP COMPANY

305 Bowman Street • Mansfield, Ohio

Step out in FRONT with . . .

REGISTERED HOLSTEINS

You take a big step toward bigger dairy profits when you buy your first REGISTERED HOLSTEIN.

Consumers today demand moderate-fat milk . . . REGISTERED HOLSTEINS produce it naturally and in bulk quantities.

And no matter how you measure a dairy cow — production, efficient use of forage, long life, adaptability — REGISTERED HOLSTEINS lead the field.

That's why each year nearly 20,000 dairymen buy their first REGISTERED HOLSTEIN . . . why REGISTERED HOLSTEIN popularity has soared to new highs during the current period of narrow operating margins.

Cost-conscious dairymen the country over are joining the big swing to REGISTERED HOLSTEINS . . . the breed that's tops in the profit league!

Sign of the Times

In a study of dairy farm profit factors by a leading agricultural college, farms marketing 202,516 lbs. of milk per man per year netted $4,524. This compared with only $1;774 for farms producing 97,825 lbs. of milk per man employed.

A DHIA survey in another key dairy state revealed that dairymen with big cows sold more milk, had larger incomes over feed cost and used less labor per ton of milk sold. Big cows were by far the biggest producers. Yet, on a per cow basis, labor requirements did not vary appreciably with cow size.

Other things equal, a dairyman with an average per cow size of 1,100 lbs. had to milk twice as many cows as his neighbor with 1,300-lb. cows to get the same milk production!

Registered HOLSTEINS *Breed of the Times*

THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA

BRATTLEBORO, VERMONT

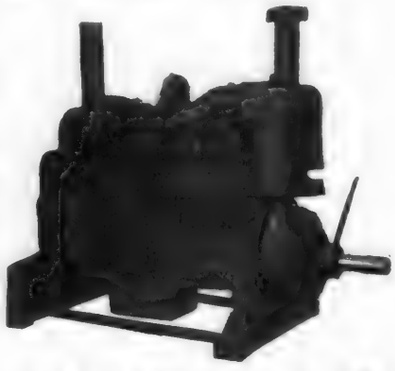
Gravity or sprinklers...Cut '59 water costs with pump-matched International power!

GASOLINE. Fourteen models from 16 hp. to 222 hp. UC-60 with 16 hp. @ 2500 rpm. is illustrated.

LP GAS. Eleven models from 28 hp. to 215 hp. U-264-6 with 81 hp. @ 2400 rpm. is shown.

NATURAL GAS. Fourteen models from 10.5 hp. to 248 hp. UV-549 with 192 hp. @ 2600 rpm. is illustrated.

DIESEL. Seven models from 60 hp. to 265 hp. UDT-1091 Turbotorque® with 265 hp. @ 1500 rpm. shown.



Act now whether you irrigate by gravity or sprinklers—and you can: 1) cut next year's pumping costs; and 2) power your irrigation system more dependably. It's as simple as replacing costly, unreliable engines with dependable Internationals. These are the pump-matched irrigation engines that pump for less by getting top production from high speed pumps and low cost fuel.

You'll find International power meets all your irrigation needs. This famous line now includes 21 carbureted and diesel models, ranging from 10.5 to 265 horsepower. And it's reassuring to know that since 1903 farmers have purchased more Internationals than any other heavy-duty engine. This long-established preference is based on one fact: Internationals make more money for owners.

For a real deal on irrigation power that will cut your pumping costs, visit your nearby International Power Unit Distributor or Dealer. Get his price on the International matched to your pump. See how you can buy the engine with factory tested fuel equipment of your choice for a full measure of power with minimum fuel consumption. Check International heavy-duty features that make these engines least expensive to own and operate. Inspect the parts and service support that backs International owners in any emergency.

INTERNATIONAL HARVESTER

180 North Michigan Avenue • Chicago 1, Illinois

International Harvester Products pay for themselves in use—Farm Tractors and Equipment... Twine... Commercial Wheel Tractors... Motor Trucks ...Construction Equipment—General Office, Chicago 1, Illinois.

Farmers report on a better way to build!

"I COMPARED ALL TYPES OF CONSTRUCTION AND ARMCO BUILDINGS WERE BEST FOR OUR DAIRY NEEDS"

So reports Bill Schmied, manager of the Wood Acre Farm in Brown County, Ohio.

He has learned firsthand that Armco Buildings are engineered for economy as well as quality.

Rapidly erected Armco Buildings serve as the loafing shed and the milking parlor on the Wood Acre Farm. They are part of a modernization program that has resulted in a 55% reduction in milking time.

"It was easy to insulate and finish the milking parlor," explains Mr. Schmied. Interlocking panel wall construction in Armco Buildings provides a "framework" for quick, economical installation of insulation and interior finish.

"THIS BUILDING IS EXACTLY WHAT WE NEEDED FOR STORING OUR EQUIPMENT"

"I looked at quite a few steel buildings and felt that an Armco Building would serve my purpose and be easiest to erect," explains Mark McDill, Liberty, Indiana, farmer. "My son and I and two neighbors put up this Armco Building in two days."

Panel wall construction simplified the erection job, saved time and money. And the finished building provides a strong, durable, good-looking, fire-safe, weathertight structure for efficient farming.

If you're planning a new building for livestock shelter, machinery storage, grain storage or other uses, it will pay you to compare Armco Buildings with other types of construction. For more information and the name of your nearest Armco dealer, just mail the coupon.

You can buy Armco Buildings on our Budget Payment Plan

ARMCO STEEL BUILDINGS

ARMCO DRAINAGE & METAL PRODUCTS, INC.
448 Curtis Street, Middletown, Ohio

Send me information on Armco Buildings for the following use:

_____

Approximate size: _____

Name _____

Address _____

Post Office _____ State _____

New '58 Dodge Power Giants do a handsome job . . . are 4-way leaders of the low-priced 3

Here's a thoroughbred you needn't gentle . . . a new kind of truck that's built for action and looks it. And today's all-new Dodge *Power Giants* for '58 are even easier on your pocketbook than they are on your eyes. In fact, they lead the low-priced three in all four big ways that mean most to farmers.

First in Styling! You get the look of tomorrow in your new Dodge *Power Giant*. From massive chrome grille and striking dual headlights to smart new luxury cab interiors, these trucks are styled to stay new for years.

First in Power! You get up to 24% more work-saving power with a new '58 Dodge. This extra power reserve reduces engine wear and repairs.

First in Payload! You get a bonus in load-carrying capacity no competitive make can offer. Unique *Power Giant* construction lets you haul up to ⅓ more each trip.

First in Economy! You get dollar-saving mileage and long-range, low-cost engine upkeep with Power-Dome V-8 engine design . . . and only Dodge has it.

Remember . . . handsome is as handsome does . . . and these all-new Dodge *Power Giants* are built to do a man-sized job handsomely, year in, year out. What's more, *they're priced with the lowest!* Why not see and drive your choice of these rugged new trucks—V-8 or Six—at your Dodge dealer's soon?

DODGE *Power Giants*

THERE'S A PLACE ON YOUR FARM FOR A PIPER

. . . to give you swift, convenient, safe transportation

Most flying farmers . . . and there are thousands of them . . . consider their airplanes essential farm equipment. They've found a plane is useful in so many ways, both for business and pleasure. Flying to stock sales, spotting soil erosion and crop blight, checking fences and wells, picking up urgently needed parts and supplies, commuting from farm to city, from one farm to another – these and many other chores are done effortlessly, efficiently and economically in your own plane.

Frequent, more distant pleasure trips for the whole family also rank high among reasons why successful, forward-thinking farmers own their own airplanes. It's not uncommon to see flying farmer families touring the Caribbean, Latin America, Canada or Alaska in their own airplanes. Statewide flying farmer organizations conduct group flight activities – breakfast flights, tours, get-togethers.

Just the sheer pleasure of flying appeals, also, to the farmer or rancher. Flying provides a fascinating recreation, a relief from the day-to-day strain of conducting a farm operation. As one doctor puts it, "An hour in my Piper is like a day off." Not to be outdone, many a farm wife has taken up flying, too.

From the standpoint of time saved, plus pleasure, a plane for you, your family, your farm can prove a wise, sound investment . . . and surprisingly economical!

PIPER BUILDS A PLANE FOR EVERY FARM PURPOSE

SUPER CUB. Workhorse for farm or ranch. Takes off, lands in 50 yards. Carries two, cruises 110 mph. PA-18-A model is world's most widely used plane for dusting, spraying.

COMANCHE. New, high-performance, roomy, four-passenger, all-metal plane with many advanced aerodynamic and safety features. Cruises 160 mph with 1,200-mile range.

TRI-PACER. World's most popular four-passenger plane. Combines the most features to simplify flying. Cruises over 130 mph, has range over 500 miles, can carry 600 pounds of freight. Ideal all-around farm plane.

APACHE. Most widely purchased twin-engine plane. Carries 4-5 passengers over 170 mph in roomy luxury. Provides safe, dependable night and day transportation. Excellent short field and single engine performance.

YOUR OWN AIRPORT

Any level pasture or strip 100 to 200 feet wide, 1,500 to 2,000 feet long with clear approaches provides adequate landing facilities, makes your Piper as convenient as your car.

EASY TO LEARN

Your Piper dealer can teach you to fly easily, either with individual lessons by the hour or under the Piper "Learn as You Travel" program. He'll teach you FREE in your own Piper.

Why not send TODAY for more details

PIPER AIRCRAFT CORPORATION
Lock Haven, Pennsylvania

Please send me literature on:

- ☐ Piper Super Cub
- ☐ Piper Tri-Pacer
- ☐ Piper Comanche
- ☐ Piper Apache
- ☐ All Piper models

Name_____

Address_____

3-Q

MORE PEOPLE HAVE BOUGHT PIPERS
THAN ANY OTHER PLANE IN THE WORLD

When the sale is made, you know for sure that Morton Trace-Mineralized Salt helps your feeding program pay off...

Even if you use other minerals, Morton T-M Salt increases feed efficiency so that all your other feeds do a better job. Thus, you end up with lowered feed costs and with more meat, wool and milk to sell. That's because your animals stay healthier and gain faster when they get essential trace minerals in their salt every day. Morton T-M is a superior product because only top-quality compounds, proved by research, are used as the sources of the trace minerals.

Be sure to feed Morton T-M Salt, free choice, to all your beef cattle, dairy cows, sheep and hogs. You know they need it. They know how much. At your feed dealer's—bags and blocks.

MORTON T-M SALT

NATIONALLY RECOGNIZED
TEST PROVES

OLIVER

the most powerful row crop tractor made

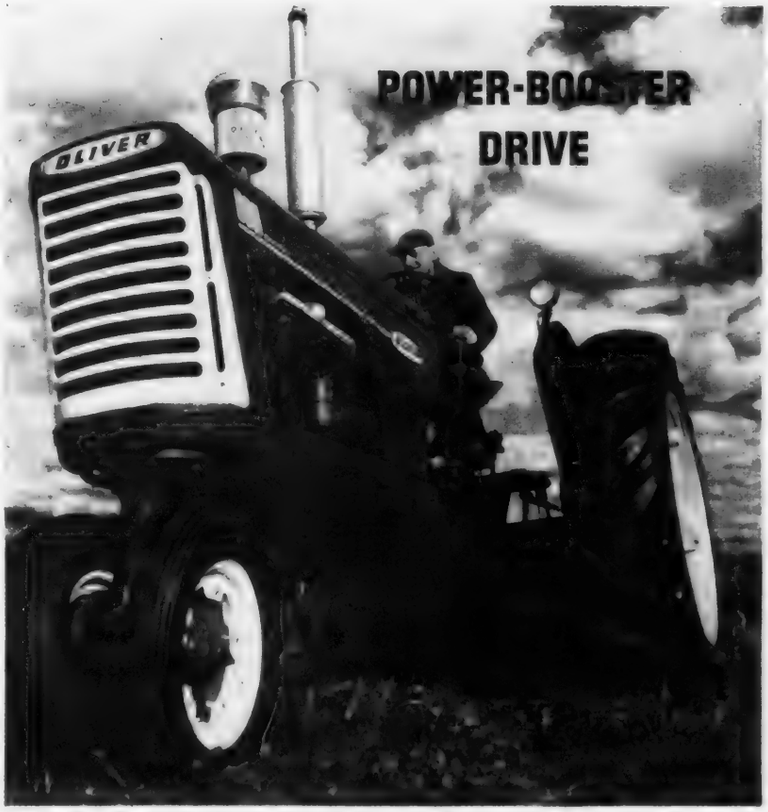
Yes, the ratings are in on tractor power—the results of exhaustive field trials, nationally recognized as *the* test of farm tractors. Here is the score on the Oliver 880:

DRAWBAR HORSEPOWER*
Gasoline 56.29 Diesel 54.97
First among row crop tractors

DRAWBAR POUNDS PULL
Gasoline 7998 Diesel 8118
First among row crop tractors

But engine power is only part of the story. Just read about the two great features—Power-Booster Drive and Power-Traction Hitch—that let you *use* that power for all it's worth!

**Maximum corrected Drawbar Horsepower.*



POWER-BOOSTER DRIVE, on the 770 or 880, brings you emergency power at the flick of a lever...ends tiresome clutching and shifting. Any time the going gets tough, this tremendous reserve of power is ready and waiting to pull you through. Coupled with Oliver's 6-speed transmission, Power-Booster Drive actually gives you *12 working speeds*, from a powerful low of 1½ m.p.h. to a snappy 11 m.p.h.

POWER-TRACTION HITCH produces a "bear-down" action that hugs your tractor to the ground. Comes a heavy load, it automatically throws more weight onto your rear wheels...you roll right through without slippage. Lower link spring latches permit fast, snap-on hitching—for all makes of 3-point implements. Top-power engines...Power-Traction Hitch ...Power-Booster Drive—*there's the most powerful combination in farming!*

SEE THIS POWER IN ACTION!
WATCH FOR THE "BETTER FARMING JUBILEE" IN YOUR AREA SOON

The Oliver Corporation
400 West Madison Street
Chicago 6, Illinois

OLIVER
"FINEST IN FARM MACHINERY"

Also Manufacturer of the Famous Oliver Outboard Motors

What next
from Pfizer and the feed industry?

NEW "TRANQUILIZING" DRUG
BOOSTS GAINS, SAVES FEED!

Since their introduction in 1954, tranquilizing drugs have helped at least 20 million Americans calm down jumpy nerves, pacify butterfly stomachs and obtain "peace of mind".

Now, feed industry scientists have found that tiny amounts of a newly discovered member of the tranquilizing drug family will speed up livestock gains!

Feeding trials at the Pfizer Agricultural Research and Development Center show that just a teaspoonful of this new drug called Tran-Q is enough to boost gains of 1,000 steers for a 100-day feeding period. Animals also needed less feed to put on the extra gains.

Improvements in gain and feed efficiency are in addition to those obtained with other known growth boosters such as Terramycin and stilbestrol.

For example:

In an 84-day feeding trial, steers getting a regular feedlot ration plus Terramycin made 11% greater gains and used 13% less feed than animals getting the regular ration alone.

When Tran-Q was added to the Terramycin-fortified ration, there was a FURTHER 12% gain and a 7% improvement in feed efficiency!

In work with lambs, Tran-Q improved rate of gain as much as 28% and feed efficiency up to 20%.

Feeds containing Tran-Q or Terra Tran-Q, a combination of Terramycin and Tran-Q, will soon be available from many feed companies—another of the industry's many services to help you produce more meat on less feed.

What next from Pfizer—and your feed man? Right now they're experimenting with higher levels of Tran-Q and other tranquilizing drugs to calm down excitable and ornery animals. This will help you prevent weight losses and disease at times of stress.

Science Comes to the Farm In a Feed Bag

Pfizer

TRAN-Q® TRADE MARK REG., U. S. PAT. OFF.
TERRA TRAN-Q® TRADE MARK REG., U. S. PAT. OFF. TERRAMYCIN® BRAND OF OXYTETRACYCLINE

Pfizer Agricultural Research and Development Department

Always on Guard

WILSON
Watchman

Exclusive Drop-In Refrigeration Unit gives quality milk protection.

Glacier-cools! *Magic Mist* makes cleaning easy!

At first glance . . . the striking beauty, the modern lines and advanced design tell you the WILSON Bulk Milk Cooler is *different*. Beneath the sparkling white and stainless steel exterior, you just know there is *quality* . . . magnificent day-after-day performance.

Wilson's exclusive *Glacier*-Cold system cools milk instantly and keeps it cold . . . yet milk *never* freezes. The WILSON WATCHMAN Drop-In Refrigeration Unit is *always* on guard . . . protecting milk quality; security for your milk check.

For emergency cooling—your nearby dealer has an extra WILSON WATCHMAN Drop-In Refrigeration Unit available. Simply lift-out the old and drop-in the new. During power failures, a reserve Glacier of ice continues to cool your milk. Add commercial ice for prolonged power failures.

Magic Mist never permits bacteria-laden milkstone to form. Eases scrubbing chores and saves valuable time—dozens of hours every year. Simply flush the easy-cleaning, round-corner interior of the gleaming stainless steel tank.

Every Wilson cooler is backed by 27 years of farm refrigeration experience . . . and a double warranty against mechanical failure.

COPYRIGHT 1958, WILSON REFRIGERATION, INC.

NEW DIMENSION **Design . . . originated by Wilson. Low! Only waist-high for easy pouring and easy-reach cleaning. Compact! Fits your milkhouse. Cabinet protected by 10-year Wilson Warranty! (Optional.) Lifetime stainless steel and easy-cleaning *plasticized* white Du Pont Dulux cabinet. All stainless available. *Consult your dealer about low-cost financing.* Sizes from 100 to 700 gallons.**

3-A meets 3-A standards

WILSON

KEEPS COOL
in any emergency

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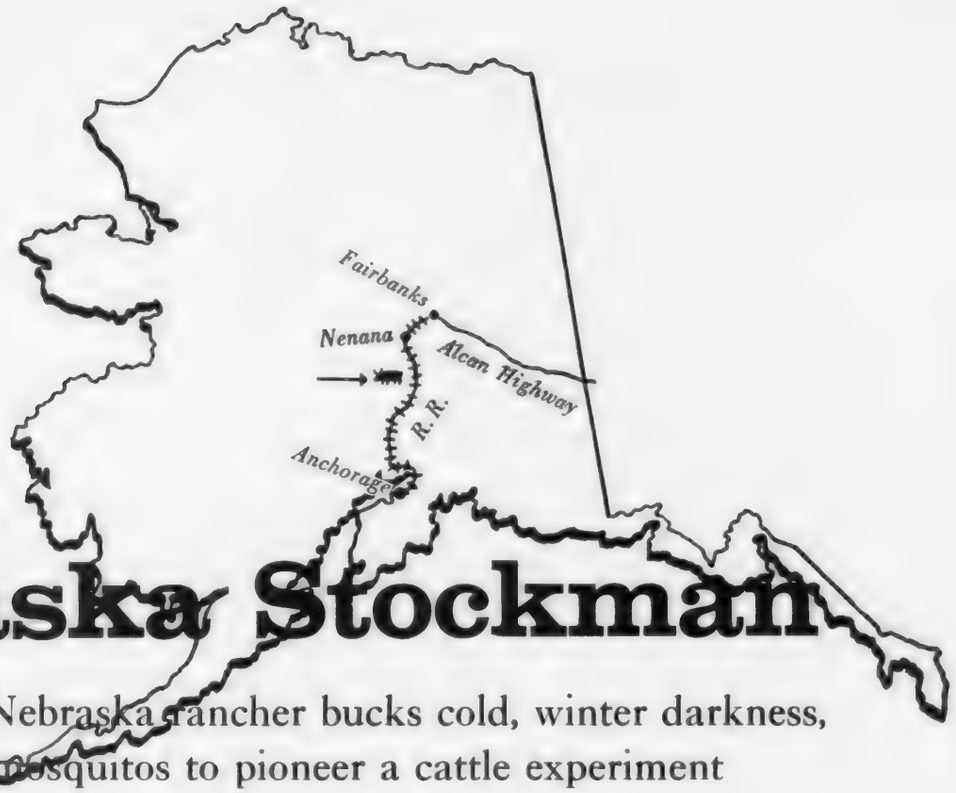


Alaska Stockman

A young Nebraska rancher bucks cold, winter darkness, and mosquitos to pioneer a cattle experiment

Story by R. J. McGinnis; Photos by Robert B. Goodman

STATEHOOD FOR ALASKA has opened vast new and unclaimed acreage within the United States. The new State poses an inevitable question to a restless people with a tradition of moving into new country: What does it take to make a go of farming there?

Berle Mercer and his wife, Claire, know some of the answers from recent and vivid experience, having completed their first year and a half in the territory. At least, they know how to start a cattle ranch on the edge of the arctic circle.

They have brought a herd of cattle through the 40 below zero winter on the open range without disastrous losses. They have lived through the weeks of gloomy darkness of midwinter and the mosquito-infested days without night in summer. They have reveled in the wonders of their wild acres of tundra, forest, crag, and mountain meadow at the foot of North America's highest peak.

To keep them solvent, Claire worked in a government office in Fairbanks during the winter—commuting weekly on a train that regularly locked horns with bull moose on the track. Berle cared for their three children and for his herd of cattle in weather that will freeze spit before it hits the snow. Through it all they have learned how to ranch in this new and strange country. Each of them had one thing it takes to make a go of a ranch or a marriage, the affection and unquestioning support of the other.

You've got to be handy with tools if you go pioneering in Alaska. With the nearest machine shop 140 miles away, Berle Mercer finds a welding outfit (top left) his best friend. His young son, shrouded in mosquito netting, is also happy. Searching for a stray (bottom left) can be an exciting experience in a land of majestic scenery.

The Mercers, in the very vanguard of what promises to be a new Alaska "gold rush," certainly could never have fit happily into the more settled ways of modern American farming. In spirit and temperament they are pioneers, individualists whose lives have been colored by a desire to get away from the rigid pattern of stateside life and be themselves. This state of mind no doubt has been encouraged by the fact that genetically they do not follow the usual pattern—both are identical twins. Their marriage made the headlines eight years ago when in a double ceremony Berle married Claire and Berle's twin brother, Merle, married Claire's twin sister, Clarice.

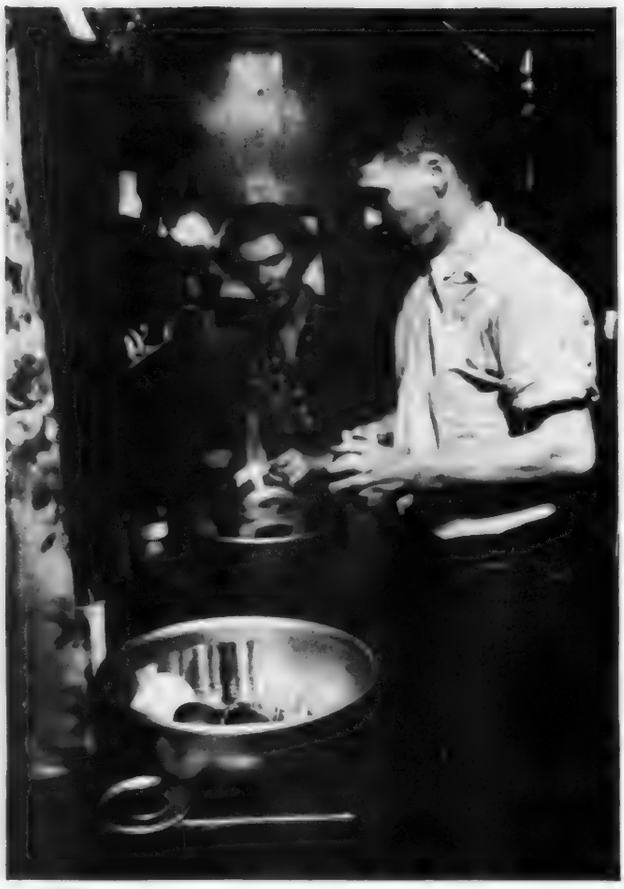
As identical twins invariably do, both miss their twins back in the home state of Nebraska. There as kids the two brothers had sat on the corral fence and talked out their dreams of what they would do when they married and started out on their own. Both agreed they wanted to be cattlemen, like their father, and both agreed that Nebraska was too small for them.

The brothers met their future wives at a convention of the International Twins Association in Omaha just ten years ago. Courtship was carried on mostly by mail. They were married in October, 1950, in Mount Vernon, New York, the home of Claire and Clarice. The two couples went to live on the home ranch, near Thedford, where the boys continued working.

Soon after their honeymoon the four of them were sitting again on the corral fence. "We're going to Alaska." Berle said. "We'll lease land and take up some animals and be ready to feed people who'll go there for the oil and the mines. It's crowded here—too many people. Claire and I want elbow room. Besides, if you haven't an 'in' here, you're out."

So the Berle Mercers went to Alaska. In May 1952 they reluctantly parted from their twins and drove a 1946 Dodge Power Wagon, loaded with personal things, up the Alcan Highway to Nanana, a small town about 90 miles north of their present location, which is almost the geographic center of the State. They planned to acquire a lease on grazing land and bring up a small herd of buffalo which Berle had bought from a government herd in South Dakota. Buffalo, he reasoned, would do just fine in Alaska. They would take the winters in stride, scrounge for themselves on the native grasses, and fight off the wolves and mosquitos. A market could be found in the slaughter houses which supply meat for the Indians and Eskimos.

But they were frustrated from the start. They found that the importation of buffalo is forbidden—Alaska closes the door on wild animals, and buffalo are wild animals, according to the book in Washington. Then government red tape held up the lease. Further complicating their problems



Pioneers have no sharp division of duties. Berle Mercer (above) was self-trained in household chores last winter when Claire was working in Fairbanks. A kerosene lantern is used when the generator falters. This (right) is the Alaska Mercer works with—redtop native grass to feed his cattle, his horse to ride herd, the rifle for emergencies, and the mosquito to swat. He wears a black mosquito net around his hat and switches the cloud of blood-sucking insects away from his horse's nose.

These letters, written by the Mercers to the editor after the article was completed, show their personalities, we feel, better than anything we can say.

Dear Sir:

I desire to have a few things more mentioned to help make a true rounded-out story:

My wife, Claire, worked from in early November, 1957, until July 3, 1958, as a Civil Service worker in Fairbanks, Alaska, to give us needed operating money for the ranch here, and groceries. If it had not been for her working I don't know how we would have ever managed and of course this was of great importance to all of us and a great hardship for her. The most of the time she went to Fairbanks on Monday mornings, leaving here about 5:10 a.m., and came home about 11:50 p.m. Friday nights. With her spending the weeks in town it left very little time on weekends to accomplish the household tasks for a full week at a time. It also meant that she was deprived of spending very much time with the children. So you see she has suffered more and contributed more to the success this past year than anyone else and many people up here and stateside knows that so it would not look or sound good for it to be written around me for everyone would then think I was a story grabber and the credit would be going where least deserved.

It is really wonderful having Claire home again for now we can get back into the swing of things, for things just haven't clicked right with her being gone. It did interfere a little with my work, tending three small sons during winter and spring and trying to accomplish great things out of doors.

Berle E. Mercer

Lignite, Alaska

Dear Sir:

I would like to add a few words about the letter Berle Mercer wrote you today:

I feel my role as family supporter has been greatly exaggerated and I do not deserve all the credit my wonderful husband has given me.

When it became evident last fall that we would need additional income, we tried to figure out the best plan all around. If Berle had taken a job, most of the ranch work would have had to be neglected, and our whole operation would have suffered. By my taking a job, our cattle received the attention they deserved and the most necessary work was accomplished. Of course, having the additional care of three small children and the house, Berle was greatly hampered from getting everything done that he would have liked to. But I think he deserves much more credit than anyone, for taking such wonderful care of the boys during the weeks, with the cooking to do, much of the laundry, keeping the house constantly warm—and all the outdoor chores and work besides, which included checking on the cattle every day, whether it was 40 below zero or not.

There is no doubt that this arrangement was a hardship on all of us, and we are all delighted that it is over. But I do want to emphasize that Berle is the one who has kept us going. We are, all of us, working hard at this together, and I look upon my past job in Fairbanks as no more than doing my share to succeed here.

Just wanted you to know how I felt—no one is more courageous or generous than my husband, or deserves more praise!

Claire L. Mercer

Lignite, Alaska

was the arrival in November of their first child. Short of cash and with no lease in sight for the foreseeable future, they reluctantly returned to Nebraska in February, 1953.

But their dream was not tarnished—they would re-group and re-plan. They knew now what Alaska demanded, and they knew what they wanted and how to get it. They had passed through the Mt. McKinley National Park on their way to Nanana and had seen the wild grasses hip-high in the mountain valleys. Old Alaska hands told them this area is the best cattle country in the territory—the winter winds sweep the deep snow from the pastures and here the chinooks come early. Berle applied for a lease in the McKinley reserve and late in 1956 signed for 290,400 acres. This leased land surrounded a place he had heard about in Anchorage, a hunting lodge, with other farm buildings and 158 acres of deeded land within sight of Mt. McKinley. And the lodge and land were for sale.

Another lucky break for the Mercers came when a rancher near Thedford heard of Berle's plan to develop a breed of cattle for Alaska. In the neighbor's opinion Mercer seemed to be just the sort of fellow to make a go of an Alaska venture. He offered to grubstake him and agreed to buy and ship an assorted lot of crosses as soon as the Mercers were located and in operation. Berle's father became a second backer when he loaned them $20,000 to purchase a hunting lodge and its 158 acres.

So again, in February, 1957, Berle loaded the personal belongings of the family in a newer Power Wagon and plowed and slid up the Alcan Highway to Anchorage and on to Healy, 200 miles to the north. Two miles from Healy he unloaded the wagon at the lodge, started a fire in the kitchen stove, and went to work. He crossed off the days until Claire and the children—three boys by this time—would join him, by air, in April. The cattle came a little later, in June.

The Big Gamble

The cattle for the big experiment were purchased from Baxter Berry of the XX Ranch, Belvedere, South Dakota. There were 54 of them, 11 purebred Scotch Highlanders and 43 crosses, Highlander-Longhorn, Highlander-Hereford, and Highlander-Shorthorn. They left Belvedere by truck on May 26, 1957, were taken up the Alcan Highway, and loaded on railway cars at Fairbanks for the final leg of the trip. They arrived in good condition at Lignite on June 3 and were immediately turned on range. There were 4 bulls, 10 cows, 9 steers and the remainder young heifers. Berle brought up 14 of his own cattle from the Nebraska ranch in the early summer. These included two milk cows.

Almost everything happened to the cattle that summer and winter, most of it bad, and much of it unexpected. The herd split up and a pair apparently started back for their native Scotland, for they were reported by a train crew late that winter holed up miles to the north.

The biggest loss, totally unexpected, came from the railroad. "That track seemed to have a fatal fascination for the cattle," Mercer said. "Only two trains a day, but it seemed there was

Berle is left holding the bucket (above) as the Mercer cow, ordinarily a tractable beast, takes off in mid-milking. In the log corral one of the Scotch Highlander cattle (below) is roped and thrown for treatment. The long-haired Highlanders resist the cold and the attack of insects.

always one of my cattle on the tracks."

A check made in the spring showed that 15 were killed on the tracks. The railroad was indirectly the cause of one other casualty. Soon after the arrival two of the purebreds calved. One of the calves wandered too near a section gang and when last seen was being chased by two Eskimo workers, who regard anything with four legs, covered with fur or hair, as fair game.

Those near the corral were fed baled native hay and one pound of cake a day. In mid-January some of them developed scabby patches due to lack of vitamins. This condition cleared up when they were given an oat-vetch-pea mixture. Those that were on range fared better, having access to wild cranberry and other native plants, which supplied the vitamins. "If I could have fed them on the oat-vetch-pea hay all winter," says Mercer, "I don't believe we would have had any losses." None of the animals were under cover during the winter.

When the spring chinooks came and the snow melted and the native redtop sprang up like magic in the mountain meadows, Mercer counted his winter losses and added up the totals of what he had learned about running cattle in Alaska. The purebred Highlanders came through far better than any of the crosses. The Highlander-Longhorn were second best, the other crosses a poor third. He stretched barbed wire to keep his cattle off the tracks, and put up as much oat-pea-vetch hay as he could lay his hands on. He knew that the Highland cattle could take the worst of the Alaskan winter and thrive; he knew that his fears of losses to bear and wolves were groundless, and that when an Eskimo section crew was working near, he had best ride herd.

At the end of his first year, 15 had been lost on the tracks, 14 had winter killed, 9 were butchered and sold, 2 were unaccounted for. He received a second shipment of 50 purebred Highlanders in August. "These are the cattle for Alaska," he says. "I'll stick to the breed.

"There's one other very important thing I've learned about raising cattle in Alaska," he adds. "They'll eat four times as much hay at 40 degrees below zero as they will at zero. It takes a lot of fuel to combat the 40-below cold. I put up 90 tons of hay last summer—this year I'll double that."

Mercer's steers put on two pounds a day on the high-protein Alaska wild redtop. The redtop is high in protein, but the first frost kills it completely and the protein shrinks almost to zero. It does make good hay if cured properly. A younger brother came up from Nebraska to help out in the haymaking. The weather was in their favor—practically 24 hours of daylight and little rain at this time of year.

Much of the 290,400 acres in the lease is worthless for grazing—mountain, tundra, and bush. However, conveniently near the corral is 3000 acres of valley where the top soil is four feet deep and rich in calcium and phosphorus. The bush can be burned or bulldozed off, nitrogen added, and a bumper crop of oats, vetch and peas harvested. Mercer figures that the range within easy reach has a potential of 3000 head of cattle, fed entirely from the pastures and meadows.

The Mercer Home

The Mercers live in a five-room frame house, log faced, pleasant and home-like, among trees with a fine view of valley and mountain. Mt. McKinley broods in the distance like a guardian God of the endless miles of forest and stream and mountain. A spring-fed stream runs near the house—in mid-summer it is cold, and always clear and sparkling.

There are two barns, a log corral, a bunkhouse, a "cache" screened and tight against varmints and used as a deepfreeze for game and other meat, an aluminum hay shed put up recently, and assorted sheds and outbuildings—one used as a shop, another as a garage.

Included in the purchase price of the place were the furnishings of the house and assorted farm machines and tools, including an arc welder, a very necessary

(*Continued on page* 115)

Mercer with his youngest son (right) flags the Fairbanks-Anchorage train. The train crew make up railroad regulations as they go and may handle such chores as ordering spare parts or fetching a bottle of medicine.

Liquid Manure Handling

Both labor costs and fertilizer value of the manure can be saved when it is stored and spread as a liquid

By Gerald L. Wilkins, *Associate Editor, Doane Agricultural Service*

STOCK FARMERS are learning to wash one of their daily chores down the drain. Handling manure as a liquid, they have found, saves labor, saves the fertilizer value of the manure, improves sanitation, and leaves the farm—even the hog lot—smelling, if not exactly like a rose, at least less like a Stinkhorn toadstool.

Gerald Harper and Merle Sauder, who run a partnership farm on the outskirts of Eureka, Illinois, have discovered all of these advantages for themselves. Jerry Harper, who looks more like an affable young professor of philosophy than a farmer, said, "I doubt if we'd be willing to feed cattle and hogs without a liquid system now that we've used it. But if truth must out, we were forced into it. The feed lot is on the windward edge of town and we were getting sour looks from most of the 2,368 citizens. It was even rumored that the building of a new church at this end of town was in question. We had to do something about the manure and we decided to bottle it in cisterns until we could spread it on the fields."

At the time of the big change, Harper and Sauder were feeding cattle on an unpaved lot. In the winter and early spring the mud got so deep the cattle could hardly navigate. In paving the lot, the blacktop was sloped gently to the south end where six precast cisterns were buried, each with a capacity of 1200 gallons. A grating was fitted over the top to permit the liquid to flow in.

All urine and rain water that falls on the lot drains into the cisterns. While this carries part of the solids into the cisterns, some scraping is needed to clean the remainder of the solids off the paved lot. Rather than push this into the cisterns, Harper and Sauder use a tractor and scraper and push the material into one corner. When enough manure is in the pile to make a spreader load it is hauled to the field. "If all the solids were pushed into the cisterns we'd have to add some extra water occasionally to thin it down for easy pumping," Harper said. "When the liquid contains much over 50 per cent solids the pump just won't do a good job."

For Hogs, Too

Last spring, the partners decided to go into a hog-feeding program along with their cattle operation. With confinement rearing causing quite a stir in the north central Illinois hog areas, they became interested and saw possibilities in building such a set-up right next to the cattle lot.

The big problem was the limited space available. There was an area 12 feet wide and 100 feet long next to the cattle lot which could be used for the hog set-up. To get ideas they visited several farmers around Illinois and Indiana.

They then talked with Frank Andrew, extension agricultural engineer at the University of Illinois, and some building engineers who had done quite a bit of work on pole-type confinement hog facilities.

"We wanted to have the fun of trying something new and of adding to our knowledge of hog raising when we built this building," Harper, the talkative partner said. "When we'd run into a problem and our consultants would say, 'Let's try it the old way—we *know it* will work,' Merle or I would say, 'That's just the point, we'll never learn anything new if we only try the old way.' Then we'd go ahead and see if there wasn't some new approach to the problem."

When the plan was finally drawn up it looked like a building for anything but hogs. It was only 10 feet wide by 100 feet long and had a 12-inch gutter running lengthwise through the middle. Pens were located along the backside of the structure and a 4-foot

alley along the front. In order to get 100 hogs into the building only 6 square feet could be allotted per hog, which is much less than is normally recommended for hogs in confinement.

Another 1,200-gallon, precast, circular cistern was purchased, installed below ground at the end of the building, and the gutter extended directly to the cistern.

With such little space allotted each hog, it was essential the manure be removed once or twice daily from the feeding floor. Rather than do this all by hand they installed a shuttle-type gutter cleaner to do the job. "Now all we have to do is throw a switch and manure and urine are moved directly into the cistern," Sauder said.

To avoid handling material by hand, they also planned the operation so the hogs could be fed by a system of augers.

In remodeling the cattle lot they had disposed of the bunker silo and erected two glass-lined silos—one for silage and one for high moisture corn. These had been set up beside a feed storage building, and conveyors and augers were used in feeding the cattle. With a little added expense they could also auger shelled corn from the glass-lined silo and supplement from the feed storage building right to the hogs.

Based on an article Harper had read in *The Farm Quarterly* ("Feed a Little a Lot," Autumn 1957), he decided to control these augers and conveyors with a time clock to feed the hogs several times a day. "The article pointed out that both cattle and sheep gained more rapidly when fed small amounts of feed several times daily and I couldn't see why the same principle wouldn't work on hogs too," Harper said.

The time clock is now set to turn on every other hour—12 times a day. It runs only about 20 seconds and gives the hogs just enough high moisture corn and pellets to last them for a 2-hour period.

"We haven't installed an auger scale for this feeding operation yet," Harper said, "so we can't say exactly how well we are doing. Just from watching, however, I'd say the thing was going very well indeed.

"The same thing is true of the whole building," he continued. "We've had it in operation too short a time to say it is an unqualified success. So far it has worked very well and I don't feel the hogs are too crowded. We may have some winter problems with moisture, but we've tried to anticipate them by installing a radiant heating system in the floor."

Spreading the liquid (left) is done by dropping the manure onto a fan; an old army idea. The cattle yard (above) has six cisterns which are pumped out once a month; most of the solids are scraped into a pile and spread with a conventional manure spreader.

Fascinated hogs watch a shuttle-type barn cleaner haul the manure from their narrow pen. Foggers dampen the hogs and gutter in summer; in winter, buried cables heat the concrete floor. The hogs are fed 12 small portions a day by an automatic feeder.

Special equipment was needed to get the liquid out of the cisterns and spread on the field. To do this job, they had a local welder mount a tank on an old army truck chassis. "The tank holds a thousand gallons and we clean out the cisterns whenever they get nearly full," Harper said. "The length of time between cleanings, of course, depends upon the rain we get. When we get rains, the cattle cisterns must be pumped out more often." On the average he figures on pumping the hog cistern twice a month and the cattle cisterns once a month.

To pump the liquid out of the cistern a diaphragm pump was mounted on the tank truck. "The pump has a 4-inch suction and discharge and can really move the liquid out of the cistern and into the tank in a hurry," said Harper. "We use a 4-inch hose on the suction end and this is lowered right into the cistern. When we get the tank full, the suction hose is pulled out and we're ready to go." A lot of power is needed to pull a 1,000-gallon tank full of liquid manure. The old army truck has it. However, Harper says if you have a 3- or 4-bottom tractor "there is no point in mounting the tank on a truck." Any sturdily-built trailer or wagon will do the job.

At first some settling out problems were encountered as the liquid was being hauled to the field. "This tended to plug up the outlet pipe during distributing and really made things messy. Also, we couldn't spread the liquid wide enough to suit us."

After some thought a 4-inch auger was installed in the bottom of the tank. An automobile differential was welded to the back of the tank and a fan attached to the drive shaft running down from the differential. The fan was located so the liquid would drop directly into it for spreading. For power a drive shaft was extended from a P.T.O. along the side of the tank to the rear and a chain linked to both the auger and the differential. Harper says this solved the problem. "We now have no settling out problems as the auger keeps it all in suspension and the fan distributes the liquid about 25 to 30 feet behind the tank truck."

Visitors often ask Harper and Sauder if they would do the job

(*Continued on page* 121)

Destroyer of calf, lamb, and hen, the coyote is also the protector of the range from mice and rabbits

The Durable Coyote

COYOTE JOE SANCHEZ, a former government hunter and of late years a professional exterminator of coyotes, tells of a recent bout with two old coyotes which had staked out a range on a small ranch within the city limits of Los Angeles.

"These two varmints," Coyote Joe relates, "had the great nerve to come inside the paved streets of Los Angeles. They holed up in an arroyo on a small ranch and made theirselves to home. They lived off the fancy animals in the neighborhood: dogs, cats, goats, sheep, poultry, and young calves. They'd run damages up to around $1,500 when the county agent gave up trying to trap them, sent down to San Diego County for me. You had to be careful when you made a trap set because you couldn't risk damaging a high priced dog. You couldn't use a cyanide gun for the same reason.

"I pin-pointed their kills and it looked as if they had their den in the arroyo, which is about two miles long and rough as a cob. I found a ledge with a good view and sat there four, five days with binoculars and didn't see a thing. One morning I find some fresh tracks and I planted twenty-five or thirty traps, baited with urine lure, in likely spots.

"The county agent notified everybody to tie up their dogs," Coyote Joe continued. "I caught the male on the third day—he fell for that love lure. I couldn't hope to get the female that way, but I did hang the male on a fence post and planted traps up and down the fence line. Sure enough she came nosing around looking for her mate and stepped into one of them. She was suckling eight pups, but I never did find her den. Both these animals were old and mangy, and their teeth were worn down to the jaw bone. The male had been in a couple of traps before mine."

Coyote Joe Sanchez has fair success in pitting his cunning against a coyote's; but it's his life work. To the ordinary rancher the coyote is often a pest and always a tough problem. Those who regard the West with nostalgia often weave around him an aura of romance and adventure. The wagon train, the skulking Indian and the sixgun survive only as props on a movie set; the coyote alone remains a living legend of a bygone era. Travelers see him trotting along the paved highways of the plains, and as they stop for the night, his moonlight serenade fills them with a haunting memory of a brave past.

Those who know the coyote well understand how risky it is to generalize about him. As unpredictable as a prima donna, he makes his own rules, and then fills the book with exceptions. He is a rugged individualist who has combined the cunning of a wild animal with the intelligence of the domestic dog.

The coyote, or prairie wolf, is kissing cousin to the gray wolf, and close kin to the timber wolf. He is neither as large nor as fierce as his big relatives, but he is twice as smart. Man has almost exterminated the wolf, but the coyote has merely retired, regrouped and then extended his battle ground.

Four centuries of rifle fire, poison, and traps have made a dent in his numbers, but he has countered by extending his range and sharpening his cunning. He seems to thrive under adversity, keeping a step or two ahead of any trick man can devise for doing him in. Formerly confined to the western plains, he has migrated across Canada, into Alaska, and down through Mexico almost to the Isthmus. In recent years coyotes have been taken in practically every state in the nation. Chicken houses in Maine, Vermont, New York, Florida have been raided in sight of superhighways and skyscrapers.

What Is He?

Biologists have noted eighteen varieties or subspecies of coyotes differing mainly in head shape. The coyotes themselves rarely observe the niceties of cranial and jaw structure when mating, so the various subspecies merge one into the other. All species are characteristically gray or tawny with yellow overtones, graduating to white under the neck and belly. Most have black trimming on their legs. The largest is the mountain coyote, which will reach 70 pounds. The smallest is the common desert coyote, which will average about 20 pounds, but in rare cases when it is well fed it will go to 40 pounds. Males are usually slightly larger than females. The typical dogs of the Plains Indians looked much like coyotes and may have been bred up from them just as most domestic dogs of the Europeans were bred from remote wolf-like ancestors.

The coyote has pointed ears, a bushy tail, and a thin, pointed muzzle. Litters average 4 to 6, but 8 is not uncommon. A litter of 19, born in captivity, is reported from Utah. They breed once a year and either dig their own dens, usually facing south, or

(*Continued on page* 112)

Individually, the coyote may not be particularly durable, but as a race he seems likely to outlast all his enemies, even man. He is trapped, gassed, and shot ; his carcass hung on a fence post as a warning to other members of the clan ; he is peculiarly susceptible to rabies ; but still he sings the night through in all 49 States.

In the yellow glow of the furnace and the white light from headlights and yard lamp (above), pelleting goes on night and day during haying season. A handful of the material at various stages of its processing shows the retention of leaf and of the fresh color. Minutes after the alfalfa is cut (top left) it is ready for processing. It is dried (top right), ground through a half-inch screen (lower left) and pelleted—still green and rich in protein and life-giving vitamins for the 100-cow dairy herd. They plan to mix the minerals and grain with this alfalfa to make a complete ration. Corn, chopped for silage, is also dried and pelleted for the 450 beef cattle.

PELLETS for the dairy cow

The Denmans feed a complete pelleted ration with no lowering of butterfat or milk production

By Grant Cannon

THE DENMAN BROTHERS, Daniel and Randolph, are feeding their high-producing dairy herd a completely pelleted ration. This came about because they had installed a dehydrator and pelleting machine before anyone told them not to pellet ground hay for their dairy cows. The cows had not heard they were supposed to react badly either. Luckiest of all, the Denmans instinctively used a coarse grind on the dehydrated hay before it was pelleted.

This seems to be the reason they have done so well. For in Kansas and Connecticut, Ohio and Wisconsin, scientists recommend *against* pelleting for dairy cows. The finely ground, pelleted hay, they said, reduced milk and butterfat production. One test in Kansas showed how unhappy the results of such finely ground pellet feeding can be. The cows fed this pelleted hay dropped from 3.8 per cent butterfat production to 2.3 per cent. That was not all; their milk production declined, they went off feed, and rumination was depressed. Feeding one-quarter loose hay and three-quarters pellets helped but not much. The theory is the finely ground hay leaves the rumen when the pellet disintegrates without giving the bacteria a chance to work on it. The Denman brothers seem to have avoided these bad effects with their coarse grind before pelleting.

Daniel Denman, the younger of the brothers, is a compactly built man of medium height. Except for a newly acquired worry furrow between his eyes, he looks prematurely young standing beside his tall son who recently returned on furlough from the Air Force to get married. The worried look has been with him since May when his older brother, heavy-set Randolph, collapsed with a heart attack. Randolph's health during his hospitalization and very restricted convalescence has naturally been a source of concern to the younger Denman. The illness also threw a heavier burden on him during the hay making season when, as dairymen, they must put up the feed for the entire year.

"We have always been able to grow the best hay in the world here," Daniel Denman said, leaning against the wheel of his tractor, "our only trouble has been getting good hay into the barn. Four out of five years we've seen our hay rained on and most of the protein washed out. This summer was a good example of what I mean. I don't know when we've had such wonderful hay growing weather—warm, muggy days with lots of rain. But it was one of the worst for making hay. With our equipment, we could make pellets every day except when it was pouring. We often worked in a drizzle of rain."

Denman slowly grinned, "We know what most farmers are going through because we have had these problems all of our lives and our father before us, back to 1904, when he bought this farm. Then in 1955 we came across an article in *The Farm Quarterly* about pelleting hay out in California ("Grass in a Bag," Spring 1955). We decided if they could do it out there on the West Coast we could do it here in Ohio."

Machinery and Production

Before the next haying season rolled around, the Denmans had purchased a Heil dehydrator and set it up on a cement slab in what used to be the turn-around of their barnyard driveway. The cooling fan on the dehydrator is also a coarse grinder in which they use a half-inch screen. From the grinder, the dried hay is blown to a California Pellet Mill which compresses the hay into pellets of three-quarter-inch diameter. The pellets are cooled and elevated to a bin in the same building as the pellet mill. In 1956 and 1957 the Denmans pelleted most of their hay and some of the chopped corn which normally would have made silage. This year they have pelleted all of the hay and all of the chopped corn.

They handle the pelleted hay mechanically with far more ease than loose or baled hay. Conveyors move it to the storage bin, it flows down into the dump truck which carries it to the barn and it flows from the storage floor of the bank barn to the stanchion barn. Pelleting reduced the labor of putting up hay and handling it later. This was of great importance to Daniel Denman

this year with his brother, Randolph, on a program of complete rest. Even so, the most important thing to the Denmans is that the nutrients which sun and fertile soil give the hay are kept there for the cows. Most of the credit for this goes to the dehydrator which dries the alfalfa with all of its leaves intact within an hour of cutting. The pellet mill may do even more. There is evidence to show that it improved the nutritional quality of poor hay. It may also do so for this excellent forage.

The year 1956 was the acid test of pelleting, as far as the Denmans are concerned. They had been on D.H.I.A. test before they started pelleting and continued on it for that year. During the year, milk production of the 92-cow herd increased 15 per cent to an average of slightly over 15,000 pounds of milk. The butterfat average was 510 pounds per cow.

In 1957 the Denmans modernized their big bank barn by adding a stainless steel pipeline system to their milker. They dropped D.H.I.A. testing at that time. This year they feel that the per cow average will go to 15,500 or 16,000.

Making Pellets

The 900-acre Denmandale Farms, which the brothers operate, has grown from the 200 acres their father bought in Trumbull County back at the turn of the century. Two hundred acres are planted to alfalfa, Vernal, Ranger, and Depuits. "They are all good alfalfa," Daniel Denman said, "but I can take you down into the fields and you can see the exact line where the Depuits is planted. It is far and away the best alfalfa I have even seen. It really shoves."

Cost accounting, as explained by Daniel Denman to his son Davis, can be a headache, except for the happy ending. By turning to pelleting, the farm has reduced labor costs in harvesting and feeding and saved $20,000 in supplement. Harvesting and pelleting is a two-man job; the easy half (below) is bulldozing the green hay onto the self feeder of the dryer.

Day and night during the growing season, a big forage harvester is pulled through the fields by a Diesel tractor which also tows the truck into which the chopped forage is blown. When the truck is loaded, the one-man crew stops the chopper, takes the load to the dehydrator, dumps it, and returns to the field.

A second man on a light tractor bulldozes the chopped hay onto the apron of the dehydrator where an elevating conveyor automatically feeds it into the roaring, flaming tube. From the bulldozer on, the hay is handled automatically. It is blown to the grinder, then into the pellet mill and the pellets are elevated into the cooler and finally into the storage bin.

Operating the dehydrator and pellet mill is the easiest job on the farm. Aside from shoving the chopped alfalfa to the feeder, the job consists of checking the instruments that automatically control the great blast of flame and the inflow of wet legume so that in a few moments all but 12 per cent of the moisture is driven out of the alfalfa without incinerating it. "This will give you an idea as to the toughness of this job," Denman said, pointing to a couple of well padded garden chairs. "We use the one over by the dryer on cool nights. The one in the shade of the pelleting shed is for daytime use."

Four men keep this operation moving 24 hours a day during the summer months.

When the storage bin is filled, the dump truck hauls a load of pellets from the bin to the old haymow of the long bank barn. Here they are heaped in a huge pile and give the whole barn the pellets' curious new-cut grass smell.

The dense pellets which fit into one-sixth the space of an equal weight of baled hay presented a real load-bearing problem for the barn. "We put braces under the pellet storage area," Denman said, as he led the way into the stanchion barn below. "Now look what has happened. The posts which support the pellets have been driven into the cement itself." Sure enough, the posts had cracked the cement and sunk a half-inch into it.

The 92 Holstein cows in the stanchions show no fear of barn collapse, however. Perhaps they are confident they could eat their way out of any mountain of pellets the Denmans might pile on them. Certainly they take to pellets with real appetite. "Along with the dairy herd, we usually finish out about 450 beef cattle a year," Daniel Denman said. "We feed pelleted, chopped corn to the heavy beef. These corn pellets run around 7½ per cent protein which seems a pretty good ration for them. Beef and dairy calves we start on the grass pellets, and they love it. We have a couple of little bull calves that will climb right into the feed wagon to forage for pellets.

"We have fed the big cattle on grass pellets, but we feed them at the rate of about one pound of pellets to three pounds of corn or other grain. With beef calves we feed grass pellets for the first six months and then lace it with corn pellets until we swing them entirely to corn. You should see them sorting out the grass pellets and cleaning them up before they touch the pelleted corn."

A silo tramper's view of the drying and pelleting layout shows the big, tube-like dryer to the left. At the end of the dryer is the grinder which blows the coarsely-ground alfalfa through the long overhead tube to the funnel-shaped collecting mouth at the top right which feeds the pelleter below. After pelleting, the pellets are elevated into a cooler in the structure between the roof peaks and then dropped into a bin over the truck entrance.

Yields of the Denman Farm run from 5 to 5½ tons of corn pellets per acre and 4 tons of alfalfa pellets. The first cutting of alfalfa runs from around 20 per cent protein down to 19 per cent, as the chopper gets behind schedule and the crop grows more stemmy. Second and third cuttings run around 20 per cent protein straight. The high protein content of the pellets, the Denman brothers feel, is the key to the economics of pelleting. "Before we started pelleting," Daniel Denman said, "we were spending between $15,000 and $20,000 a year for 200 to 300 tons of protein supplement. This was to replace the protein leached out of our hay by the rains. In 1957, when we were feeding part pelleted hay and part baled hay, our supplement bill dropped to $2,380 for 34 tons of supplement.

"This year we are feeding straight pellets and doing without any protein supplement. There has been no drop in production during the first two months of this new feeding system. The only extra feed the cows get is a mixture of corn and oats to provide energy. The grain is fed at the rate of one pound of grain to approximately three pounds of pellets. We see no reason," Daniel Denman said, "why we can't put the grain and a mineral mix right into the pellets and handle the whole feed that way."

The Denmans have $25,000 tied up in their dehydrator and pelleting equipment. They figure it costs them around $20 a ton to cut, dry and pellet the alfalfa or the corn. In arriving at this figure they take into account the 50-gallon-per-hour consumption of fuel oil, Diesel fuel for the tractors, electric power for the pellet mill, labor, and depreciation on the equipment.

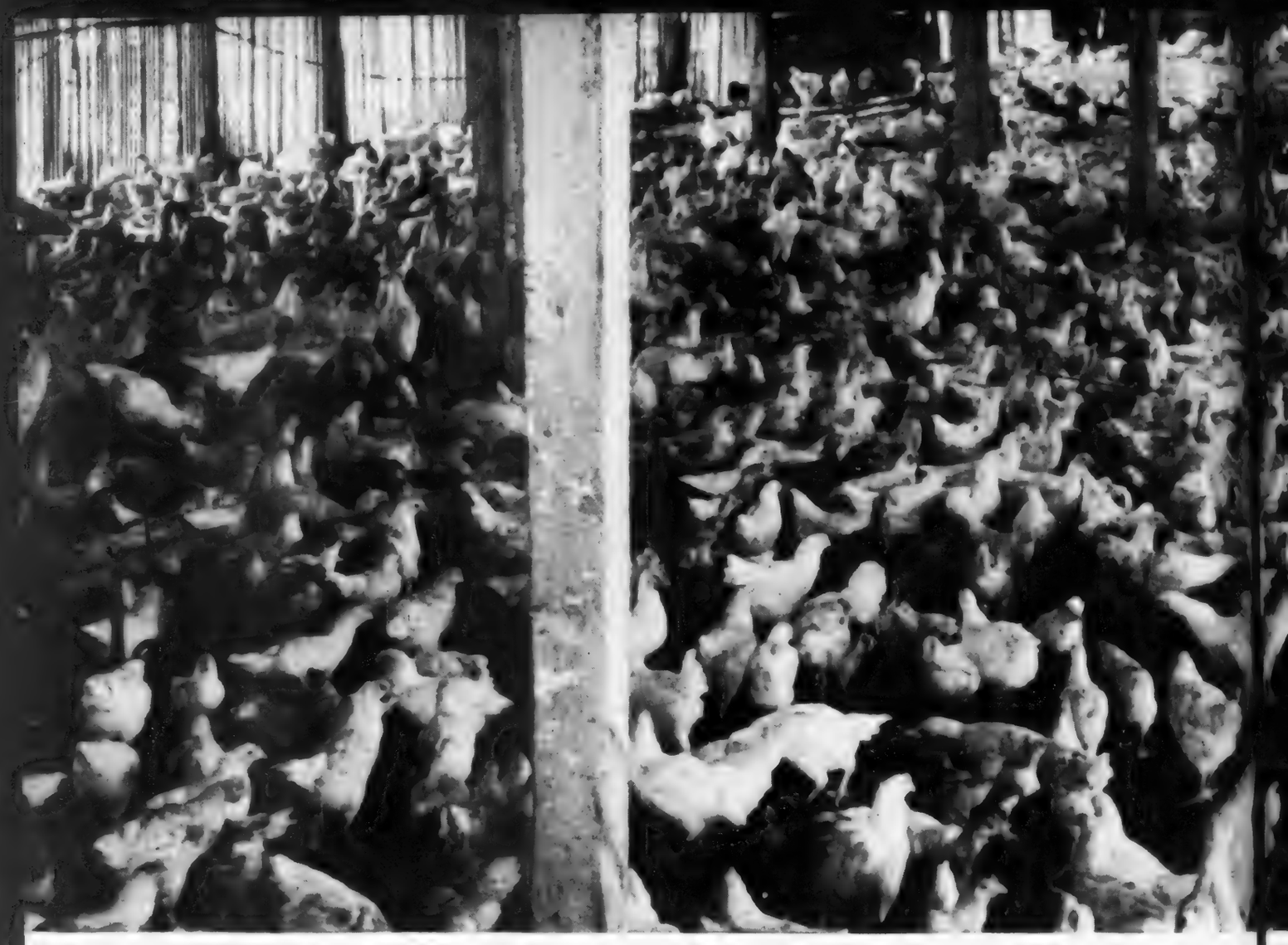
They have two extra jobs they do when there is a moment of slack. They will go to their neighbors' fields, chop the hay, bring it to the pellet mill, pellet it, and allow the owner to haul the pellets home in a Denman truck for $35 a ton of pellets.

Another sideline keeps the drying equipment and labor working profitably even during the winter months. They have found a ready market for dehydrated manure from their dairy and beef herds. The manure is run through the dryer and bagged in six-ply paper bags which hold 50 pounds. The Denmans receive $45 a ton for the bagged manure. Empty bags cost them 17 cents apiece. The retail price of the dehydrated manure is $2.50 a bag.

Summing up the economic picture, they have added capital investment to cut labor costs, greatly increased the nutritional yield of their fields, cut feed costs, and added two income-producing projects—custom pelleting and manure selling.

"When we bought this equipment," Daniel Denman concluded, "we had never seen an alfalfa pellet—we were taking a gamble in the dark. We have not been able to detect any drop in butterfat or milk production with the coarse-ground pellet—in fact, we have increased production. The system is paying for itself; we'll never go back to our old way of handling hay."

While the Denmans are exploiting all the possibilities of drying and pelleting, the Albers Milling Company has come out with a mobile hay-compressing machine designed to go out into the hay field and make hay wafers, and International Harvester has shown an experimental model. It is too early to compare the methods, but it does remind one of the definition of obsolescence in this fast moving field, "If it works it is obsolete."



I Won't Be Integrated

By Joseph Muir

A one-man operation raises 300,000 broilers a year and with size and efficiency avoids integration

A FORMER FARM radio broadcaster fell into the trap of believing in his own statements, and some of his dreams, too. Armed with technical details by the carload, Jack Adams, of Brentwood, California, has built a 300,000 birds-per-year broiler operation, and what is most remarkable, he does all the work himself; his operation is a one-man affair. With automation, high energy feeds, attention to details and barter with neighbors, Adams keeps his costs currently at about 17 cents per pound; his net at more than two cents per pound.

Jack Adams, 38, and a native Californian, has a ruddy, round face that breaks easily into a smile. Adams looks like the radio broadcaster he was, rather than the poultryman he is; but his soft, pleasant manner belies the energy and determination it has taken to get one pound of broiler for each two pounds of feed.

He was one of the first broiler producers in California to use high fat content in feeds. And he was one of the first men on the Pacific Coast to use a hot-water heater system for brooding broilers.

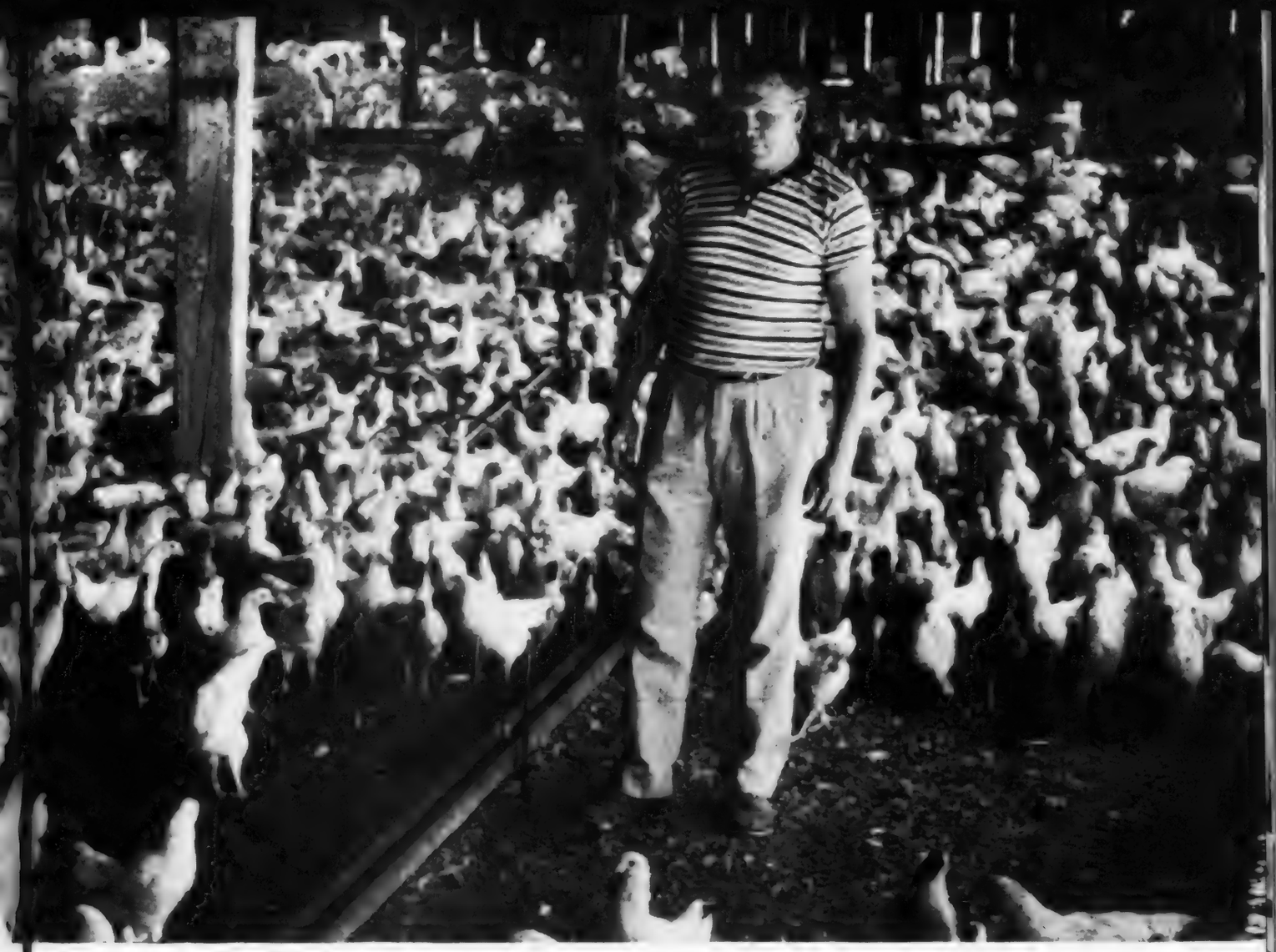
On July 1, 1958, Adams signed a contract with Swanson TV Dinners Corp. to deliver 50,000 birds weighing two and three-quarter pounds every eight weeks at a firm price of 21 cents per pound. Swanson exercises no control over Adams' operations.

You might think that Adams is getting rich. "Not so," he says, "the key to this one-man operation is to make everything possible work by automation. But I've still got things to do. I'm sure I can make my conversion ratio one-to-one within four years. Profit? I'm shooting for four cents per pound net on this Swanson contract! Integration? I'm working for Jack Adams, not a feed company. And, by and large, Jack Adams will have to solve my problems and set my program."

Born in El Centro in 1921, he attended grade and high schools at El Centro, graduated from the University of California at Davis in 1941 with a major in dairying.

The war interrupted career plans for four years. After his release from the Air Force an old college ambition was realized with the offer of a job handling the farm radio program at station KSCO, Santa Cruz, California. A year later Jack took on the job of directing the farm program over KTUR at Turlock in the heart of the agriculturally famous San Joaquin Valley.

He told the story of farming so convincingly that he began to believe it himself.



The walk through each morning is Jack Adams' most important job in checking on birds, lights, feeders, waterers, and all the detail of his giant broiler business.

"My interest in broiler production," he said, "began through the Stanislaus Poultry Farm Advisor, Frank Melchier. Frank used to come in with his poultry pointers to peddle over the air and soon I was his best listener. One day he told how Elmer Pagel of Turlock made $7,000 net on 10,000 broilers. This was fantastic—he hit a 45 cent per pound market. But that wasn't what captured my imagination. It was Pagel's success at automation in the feeding of his birds.

"Right then all the useful poultry tips I had broadcast began to shape into a real broiler plan," Adams said. His wife's parents added tinder to Jack's fire. They were in the hatchery business and his visits to his in-laws became more frequent. He quizzed them incessantly on poultry know-how. Jack's brother-in-law, Keith Weitze, was a poultry feed salesman for the Purina Company and here he found a mine of nutritional knowledge.

The University of California Extension Service Specialists had pointed out many items needed for successful poultry management, among them the need for isolation to protect against contagious viruses.

Progressive poultrymen had demonstrated that automation was on its way. Feed companies were teaming up with experiment stations all over the country to build better energy feeds.

"And markets!" Jack boasted. "Why, right here in California we have the best darn market in the whole United States. And it was going begging, for much of California poultry came from other states."

He observed that new, expensive buildings weren't needed to grow broilers. That settled it. He counted his money, $2,000 in cash. This, with what credit he could get, would have to do.

A few drives through the San Francisco bay area convinced Jack that the Brentwood, Contra Costa County orchard growing region was the answer to his plan. He wanted isolation from other poultry producers; Brentwood was just about 50 miles from San Francisco. He needed a place to dispose of litter and found some orchard men willing to try it as fertilizer. He wanted to be near a dependable feed supply, and Stockton, one of the great grain and feed centers in California, was just 35 miles to the east.

Adams' Start

The first buildings, rented at $1800 per year, were three old dairy barns, each with 10,000 square feet of concrete floor space. These barns were built in 1910 for a dairy operation by the old English firm of Balfour and Guthrie; but dairying was discontinued in 1930. The ranch was sold to the Brentwood Irrigated Farms, the land was planted to orchards, and the buildings stood unused for 20 years.

Bidding radio good-bye, Adams moved to Brentwood and began the job of adapting the barns for broiler production. Starting with one barn, he took out the stanchions and feed mangers and leveled off the cement floor. He took out the solid sidewalls to an eight-foot height and built in slats spaced one inch apart to provide good ventilation.

Starting with such limited capital he had to make wise investments. His first purchase was for automatic feeding equipment and hot water brooding systems. With the water already piped in the building it took little cash for watering troughs, which he installed himself. He put in the wiring, too.

Next, he got a feed loan of $1600. A load of shavings were scattered on the floor, the brooder heat turned on, the chicks arrived, and Jack was in business. This was in November, 1950.

"It looked foolhardly to a lot of folks for me to buy up used equipment and rent old buildings when others had failed," Jack said. "But I knew that capital investment and labor costs had to be held down, and volume had to be increased. I hoped I had the energy and savvy for it, I knew I'd have to do everything myself."

The original capital investment in a slow but sure growth has since grown to over $50,000 inventory of equipment, including brooders, automatic feeders, bulk tanks, lighting systems, one pick-up truck, forks, tools, wire catching pens, and scales.

Ten thousand chicks went under the hot water brooder system in November, 1950, and were sold at 3 pounds in 11 weeks, early February, 1951. By mid-1951 the second barn was ready. And by December Jack had sold six batches of 60,000 birds at three-pound average. The second year, he marketed 80,000 birds and during the three years '53, '54, '55, his output was 110,000 birds annually.

In the fall of '55 he rented an idle broiler house, including equipment, from Ken Hobson, a mile from the first units, for $720 per year. During 1956 he turned out 140,000 broilers. In the fall of 1956 he rented two other idle broiler units, each having 10,000 square feet or more of floor space, together with brooders and equipment.

Automatic feeding units were installed and by January of 1957 Jack had 5 barns in operation each handling 10,000 birds per 10-week cycle, and turned out 280,000 broilers all averaging 3 pounds. This was 840,000 pounds of live meat.

With the Swanson TV Dinner contract asking for 300,000 birds averaging two and three-quarter pounds he is increasing the numbers to 12,000 birds per brood and shortening the cycle to 8 weeks.

With such a rosy history of success, Adams is understandably optimistic about the future—but with reservations.

"It's not all beer and skittles by a long shot," he said. "What bothers me is that during the first four years I made about as much net as I do now. We had higher prices. Today I have to produce 100,000 birds more to make the same net. And you can bet that housewives will insist on still cheaper broilers in the days to come. Now, I'm not hurting too much, you understand, but it does look to me like my future consists of more automation, more birds and capital investment to make the same money. And that isn't the normal over-all pattern of our economy, is it? I don't know the answer, but I don't mind work; so I'm not losing any sleep over it."

Feeds and Feeding

The first two years Adams had to buy his feed in sacks and dump it into the automatic feeder bin. Constant needling from himself and other producers eventually turned the trick with the feed companies. In 1953 they started to deliver truckloads of feed to bulk tanks. Then the automatic feeder system took over by simply flipping a switch. "And my back has been very grateful ever since," Jack adds.

The bulk truck delivers 12 tons each trip and spouts six tons into each bulk tank. Adams keeps tabs on the tanks and orders when the tanks get low, figuring it so the one delivery per bulk tank lasts the brood.

"I do have a little hand labor in starting the chicks," Adams admits. "The first two days I put the feed on newspapers on the floor near the edge of the brooders. The third day I put feed in the shallow cardboard lids off the chick delivery boxes and slide them part way under the edge of the brooder."

This starting mash contains 26 per cent protein. Within a few days the chicks can reach the automatic feeders. At the end of three weeks a finisher mash is dumped in on top of any remaining starter feed. In one or two days the transition is made and the chicks are on the 23 per cent protein, high fat content finisher mash with no more change.

The first year it took Adams eleven weeks to produce a three-pound bird on 10 pounds of feed, or 3.3 pounds of feed per one pound of gain. This ration contained no animal fat and finishing mash was not over 3.5 per cent vegetable fat.

He has tried several different feeds and mixtures, searching for the highest energy value, and the past several months has been very well satisfied with the starter and finisher mashes put out by General Mills. The finisher tag reads: Crude Protein 23 per cent, Crude Fat 8.5 per cent, Crude Fiber 3.25 per cent, Crude Ash 6 per cent, Moisture not more than 12 per cent, Minerals not more than 2.5 per cent.

According to Adams, the ingredient in this feed responsible for the good gains is the fat, most of it animal fat. This finisher feed actually tests out at near 10 per cent fat. This increase in energy value makes the mash moist, keeps down dust, and prevents it from blowing.

"We've also found that corn and sorghums make the best grain for broilers," Adams said. "This feed also contains sufficient vitamins, minerals and some drug ingredients for growth stimulation and as an aid in the prevention of coccidiosis."

Grit is fed separately in small troughs which are filled by hand. Adams uses a 3 x 10 screen crushed granite rock grit. It costs $14 per ton and takes 500 pounds for each 10,000 birds for 8 to 10 weeks.

Adams now has the feed conversion down to two pounds of feed for one pound of gain, an amazing increase over the 3.3 pounds of feed to one pound of his first year of operation. His feed supplier Boyd Jensen of General Mills, at Stockton, sold Adams 1,684,000 pounds of feed in 1957, and Adams delivered 841,000 pounds of live birds to John Bellvomini of the American Poultry Company in the same year. Adams, as a grower-dealer with General Mills, saves himself $4 per ton on his feed.

Adams sets the time clocks on the automatic feeder to start at 5 a.m. and run for two hours, then off for one hour, on two, off one, until 10 p.m.; then on at midnight for one hour, and off until 5 a.m.

The lights are also synchronized with the feeding at night to come on when the feeders are operating, off when they stop. A 40-watt light bulb is used and eight drops are distributed throughout the 10,000 square feet of floor space.

Water is kept on all the time and is supplied in metal troughs adjustable to height as the chicks grow. The flow of water is controlled by float spring valves.

Breeding

California hatcheries take the Vantress Cornish Cross male from Georgia and mate him with the Nichols New Hampshire and the Arbor Acre Whiterock fe-

(*Continued on page 125*)

Extra men in this one-man operation are supplied mainly by others as a service. Feed handling (left) is done by the feed company when they deliver to a bulk tank, from which the feed is then handled automatically ; litter is purchased layed down in the coops and manure is sold on the floor, with coop clean-up by purchaser ; the hatchery supplies help (right) when the chicks are delivered ; and the broiler buyer furnishes half the catching and loading crew. Blue light is used in catching, the chickens are blind to it, therefore easier to handle.

C M Russell

This cowboy artist handled lariat and hackamore, charcoal and paint brush with an equal skill. His many paintings resulted from a driving desire to record the West he loved

By George Laycock

MANY ARTISTS have painted horses—Rosa Bonheur her frolicsome Percherons, Paul Gaugin his decorative abstractions, Franz Marc his startling red animals—but none of them could equal Charlie Russell for sheer equestrian action. A Russell painting of a stiff-legged, bucking outlaw or a working ranch horse braced against a taut lariat or a cow pony, legs bunched, sliding down a steep slope, is obviously the work of a man who spent most of his life in the saddle. When Russell painted a cowpoke throwing a rope, he caught the wrist action that held the loop open until it slapped around the legs of a calf. His Indians were dressed and painted in the style used by the conquerors of Custer —though they were certainly romanticized a bit. And his bear —usually wounded and about to do mayhem to the hunter or his dogs—can be identified down to the sex and subspecies. Charles Russell knew his subjects.

Russell painted hundreds of pictures of cattle and cowboys, Indians and buffalo. He knew the Western cattleland before railroads and barbed wire choked it. He knew it in detail and painted it in detail. Even the cowboys could find no fault with his work. Every strap and rope and brand was in its place.

And this was not surprising for Charlie Russell was a Montana cowboy himself and a good one.

His paintings of cow country scenes are still growing in value. Modern collectors of Russell paintings think in terms of thousands of dollars for paintings which brought Russell a few hundred at best.

One of the best Charlie Russell collections today is in the Charles M. Russell wing of the new Montana State Historical Society Museum in Helena. This room and its collection is evidence of the pride Montana people take in Charles Russell. Money for it was raised by subscription, and the paintings there are valued at more than a half million dollars.

Russell knew the wide spaces of Montana in a day when men were open-handed and for the most part honest. They drank their whisky straight. Life and cattle-ranching were rugged and realistic. And that's the way Russell painted them. Will Rogers,

Charlie Russell's Montana

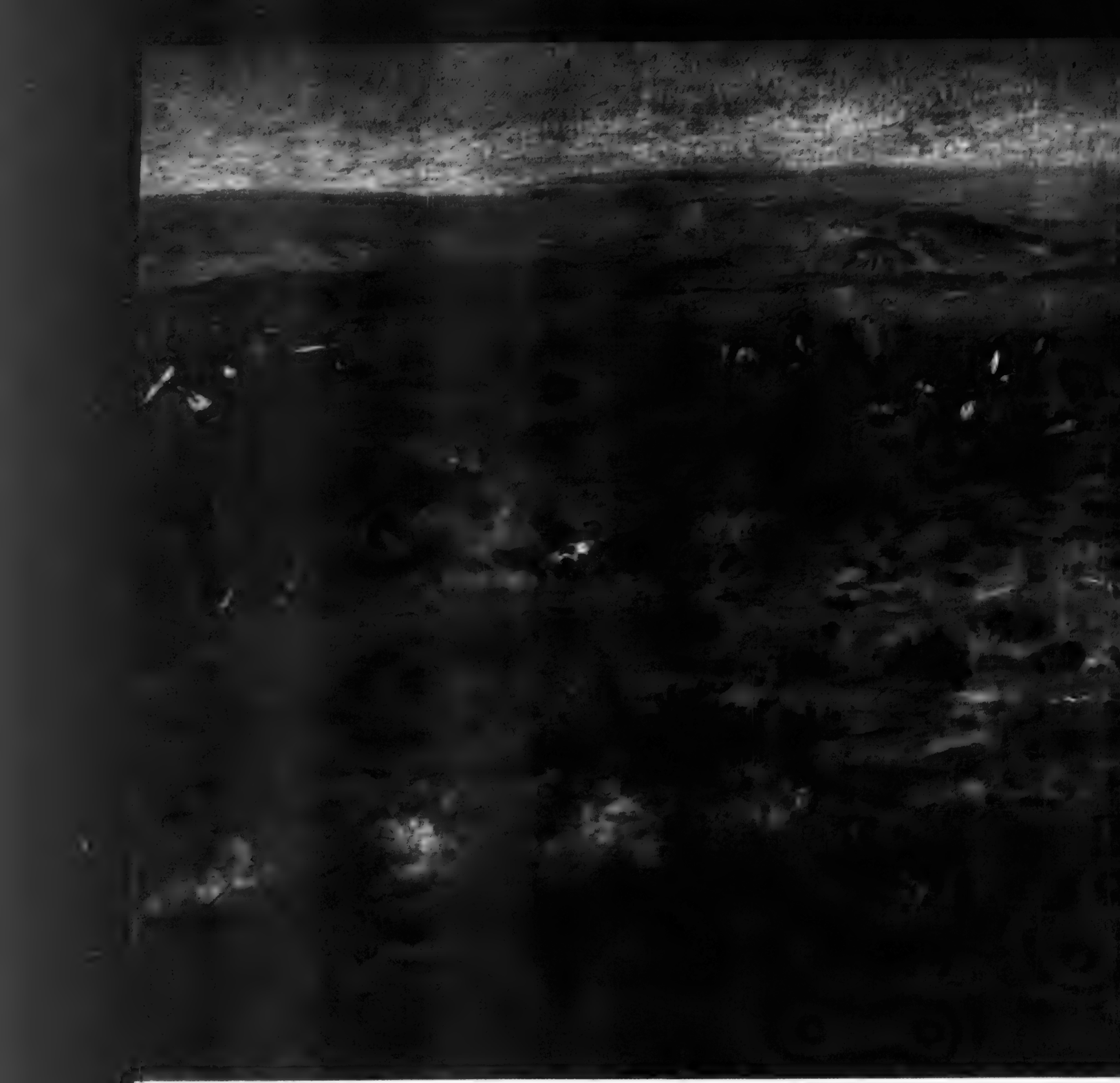
Charlie Russell lived closer to what we think of as being history than seems possible. The Montana he discovered in 1880 was still an unknown land to most Americans. Most of them thought of it as the scene of ambush.

Four years earlier, when Brevet Major-General George A. Custer and his Seventh Cavalry detached themselves from the command of General Terry on June 22, 1876, and marched up the Rosebud River to the Little Big Horn and disaster, they were operating in an almost totally unknown region. Except for the valleys of the Missouri and Yellowstone Rivers, which were well traveled, the few whites who had seen the great Montana interior were the mountain men and fur trappers and they were not mapmakers. In the four years of almost constant warfare that followed the Custer massacre, Montana was charted in blood, until the surrender of most of the remaining hostile Sioux in the spring of 1880.

In response to the lure of open, relatively peaceful range the cattle herds came trailing north, the great ranches were established, and the spring and fall roundups were held where only a few years before the Sioux had hunted buffalo and skirmished with the Crow, their traditional enemies.

The 1880's were the great days for cattle in Montana. The Indians had been whipped and the homesteaders were yet to come.

This was Charlie Russell's country and this was to be his great theme: a land in transition from the old, wild, free life of the Indian and the mountain man to the orderly ways of progress. His sympathies lay with the old.



who was a close friend of Russell's, once said, "You could look at one of his paintings and tell just what the Indians and the horses and buffalo were thinking about."

There wasn't much about Russell's appearance that marked him as an artist. He was taller than the average and a little heavier. He had a square jaw, jutting chin, straight nose, high cheek bones and blue-gray eyes.

It wasn't many years after he was born in St. Louis, Missouri, that Charlie started thinking of going West. Stories of the open range fascinated him so much that instead of studying his school books, he drew pictures of Indians in the margins. If there was homework he would offer the boy next to him "two Indians to do his figures". It isn't surprising that he never acquired much book learning. His father once enrolled him in an art school but after three days of drawing a plaster foot Charlie quit in disgust. He was only 15 when he convinced his father to let him go West.

There were only a few thousand people in the whole Montana territory in those days and there was usually a good demand for men to work the cattle. Kid Russell worked for a number of ranchers, eventually became a skilled hand with cattle and horses. He carried his box of paints and charcoal in his bedroll and whenever he had free time he drew pictures for his own pleasure and the amusement of his cowboy friends.

Social center of the day in the cattle country was the saloon and on Saturday nights Charlie saddled up and rode to town with the rest of the hands. And there behind the swinging half-doors a lot of early Charlie Russell paintings were passed across the bar for drinks. Or if a friend admired one of his paintings, Charlie made him a gift of it. He never worried about his paintings once they were finished and for many years he placed little value on them.

Charlie was also a talented sculptor. But he showed no greater business accumen in disposing of his clay figures. The story goes that a drummer came into the saloon where one of Charlie's clay bears was perched on the bar. Charlie set the price at $20.

The drummer would much admire to own it but allowed he had only $10 to spend. Charlie picked up the bear, mashed it into a pile of clay again and promptly modeled a half-size, $10 bear.

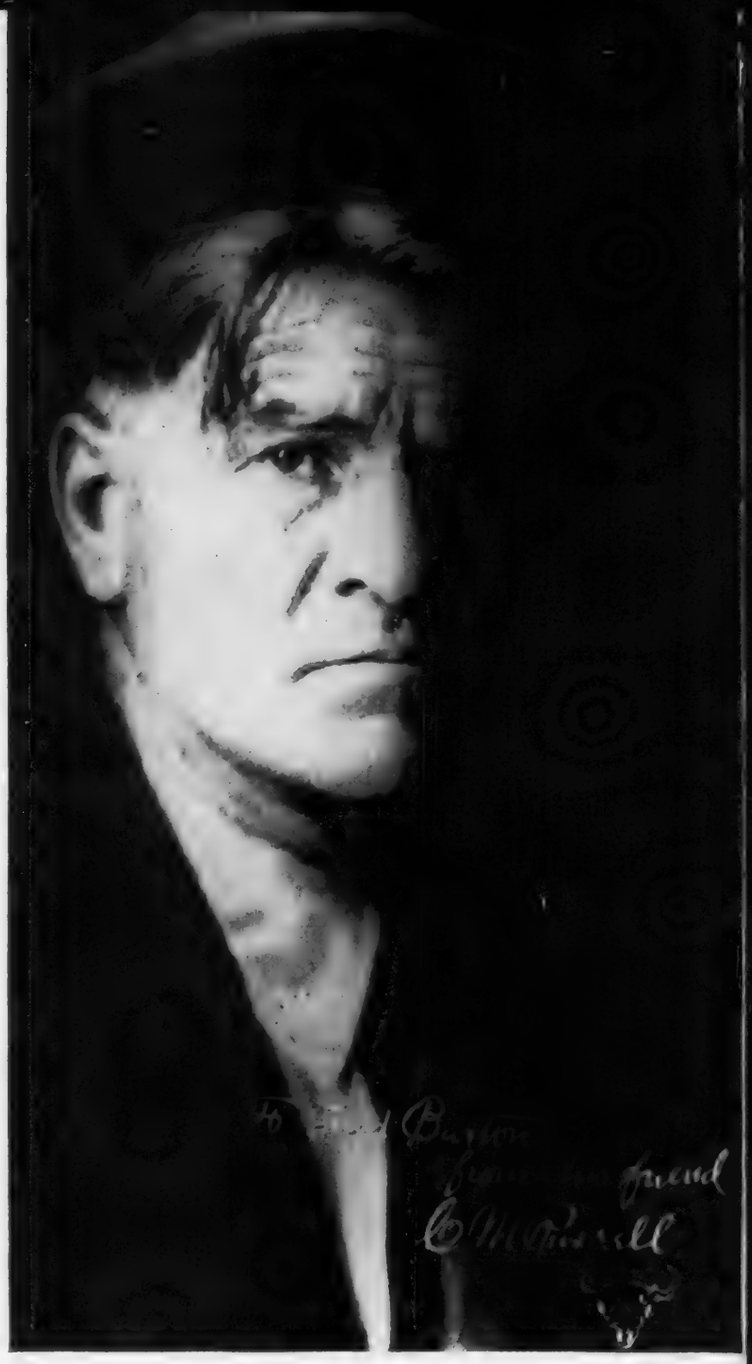
Charlie liked the West for many reasons. One of the big ones was that out here in Montana every man was as good as the next one. Independence was a matter of pride and no man needed to be subservient. Charlie demonstrated this western trait to an English Lord who came through the state bound on a big game hunt and in search of a guide. The cowboy artist, between range jobs at the moment, hired on as a hunting guide and the two men set out for the mountains. They traveled a full day before finding that their personalities clashed. Charlie made camp in the evening, hobbled the horses, and cooked supper. He told his Lordship to come get chow and Charlie himself dished up some food and pitched in.

The Lord stared in disbelief and promptly announced, "I'm not accustomed sir, to eating with my servants."

Charlie looked him up and down and said quietly, "All right then, you can just wait 'till I get done." The next morning they turned back for town.

Montana winters on the open range were hard on men and cattle alike, but especially on cattle.

(*Continued on page* 80)



More cowboy than artist in appearance, Charlie Russell combined both careers to leave a pictorial record of the open range with its roundups, rustlers, and rough riders. In the terrible winter of 1886, he painted "Waiting for a Chinook" (below) as a report on cattle conditions. "The Roundup," a famous Russell painting, can be seen by folding back the left hand edge of this page.

13 tips fo pick & shell harves

By Chester Charles

Field shelling gives earlier, faster corn harvest. Research men and experienced machine operators such as these caution *early* does not mean premature and *fast* i not a synonym for reckless. You can't g 100 per cent of the crop, but efficient methods can hold your losses to a minim

PICKING CORN and shelling it as you roll through the field saves labor, advances the harvest date, cuts harvest loss, and allows less expensive, more compact storage facilities. To this end, inventors have been tinkering with picking and shelling machines since the late 1920's. Now that we have the equipment, we are finding we need to learn the fine points of using it effectively. There's hardly a better moment for such a brush-up than now when the corn stalks are drying out and the leaves turning brittle.

It's a little late for this year, but one way to help get peak efficiency from your picker-sheller, corn combine or trail-behind sheller is to plant an easy-husking variety of corn. That's Rule No. 1 for shelling corn in the field.

What do husks have to do with it? Husks can cut sheller capacity by two-thirds. The number of acres field-shelling equipment can cover in a day is usually limited by shelling capacity. You can't pick any faster than you can shell. With too many husks power requirements soar. Debris increases in the shelled corn, which complicates drying and storage. Balancing the drying capacity with the picker is also essential—many units shell more than a batch dryer can handle.

Early harvest, the big advantage of field shelling, backfires if the corn is too immature. An eager-beaver custom operator picked corn at 35 per cent moisture for Ed Kirts of Pataskala, Ohio, last year. The shelled corn was dried with heated air. "At the same time," said Kirts, "I hand-snapped some samples of ear corn from the field and allowed it to dry naturally for about six weeks. Then I took samples of both ear and shelled corn to Ohio State University. Tests showed no difference in feeding value, but kernel analysis showed an eleven per cent weight loss in the field shelled corn. It wasn't from shrink. The loss was solely due to separating the kernels from the cob before maturity. Apparently some kind of transformation takes place in corn between 35 per cent moisture and the point of maturity. Or so some scientists are thinking. At least one scientist believes that as corn dries, the moisture drawn from the cob deposits soluble matter in the kernels as it passes through them, adding weight, and perhaps increased nutrients, to the kernels."

"It is certainly comforting to have all your corn harvested by the second week in October," said Velmar W. Davis, USDA farm economist with headquarters at the University of Illinois. "Field shelling looks good to a farmer who is used to corn picking in November rains and December sleet. He buys a new picker-sheller, and on a hot September afternoon he decides to pick half a load, just to see how she works. It goes fairly well, since he ignores the cracked corn in the bin and the trail of kernels behind him. He doesn't quit until supper time. The next morning that corn is hotter than his breakfast coffee.

"Here is my point: Early harvest can be over-early," said Davis. "Moisture," he stressed, "is the key factor in field shelling, in drying, and in storage. Don't begin the harvest without a moisture test. Wait for the corn to mature. Maximum yield and 100 per cent maturity occur when the kernel moisture content is about 26 per cent, provided this level is reached before cool weather," continued Davis. "Yields decline above and below 26 per cent, but between 22 and 30 per cent losses are minor. The spread of 8 per cent should give enough time for efficient field shelling. At 30 per cent moisture, corn has about everything it ever will have, and is mature for practical purposes. Above 30 per cent, shelling losses are high, kernels are damaged, the corn is not clean and potential yield is reduced. Also, it takes more time and fuel to remove the additional moisture. Surveys show a high percentage of farmers complain of storage troubles from crusting, spoiling and heating. Usually the fault was due to corn that was not clean in the first place.

"In central Illinois, corn on the stalk will lose moisture at the rate of about one per cent a day in September, one-half per cent in October and a quarter per cent in November. With field shelling started at 30 per cent and conventional picking at the usual 20 per cent, field shelling can usually begin 2 to 3 weeks ahead of picking. On a six-day-a-week basis, by harvesting 10 acres a day, an easy run for two-row equipment, around 150 acres of corn can be field-shelled before regular picking can begin." Davis' point is documented by experiences of farmers across the Corn Belt.

Endrin Johnson, Huxley, Iowa, cash grain farmer, has no help with his 100-acre corn crop. Last year, single-handed, using a self-propelled picker-sheller and a 600-bushel batch dryer, he harvested, dried and stored a 95-bushel per acre yield from his 100 acres of corn by the third week in October.

Muddy weather often hit George Glass of Cameron, Illinois, before he could get his corn harvested in the conventional way. When that happened, Glass would be stuck on his muddy road with no way to haul his crop to market. Last year, with a corn head on his self-propelled combine, he picked his own 150 acres of corn along with 100 acres for a neighbor, and had his corn dried and in storage in town by early November. "I left less corn in the field than I've ever done before," Glass said. "I know you can't get every kernel, but I aim to try."

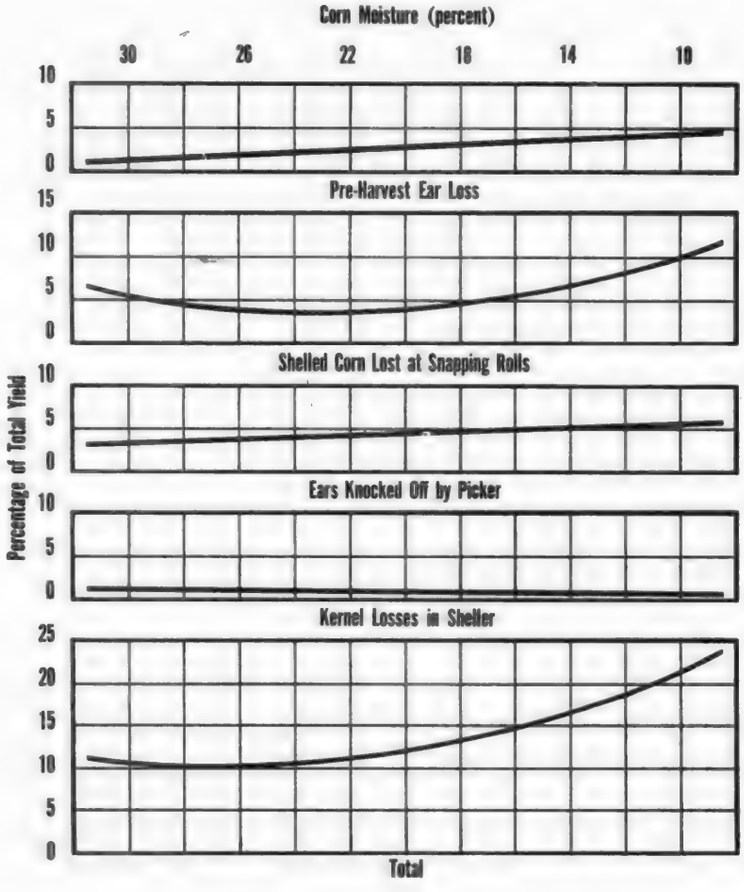
Reducing Losses

Corn is lost in five main ways (see chart on page 58): 1. Ears that drop before harvest. 2. Loss from harvesting before maturity. (At 32 per cent moisture, corn yield is about 2 per cent under maximum.) 3. Ears knocked off by the harvesting equipment. 4. Losses in crushed ears and shelled corn at the snapping rolls of both picker-shellers and combines with corn

headers. 5. Losses in the shelling equipment because cobs are not stripped clean or because cracked kernels pass through.

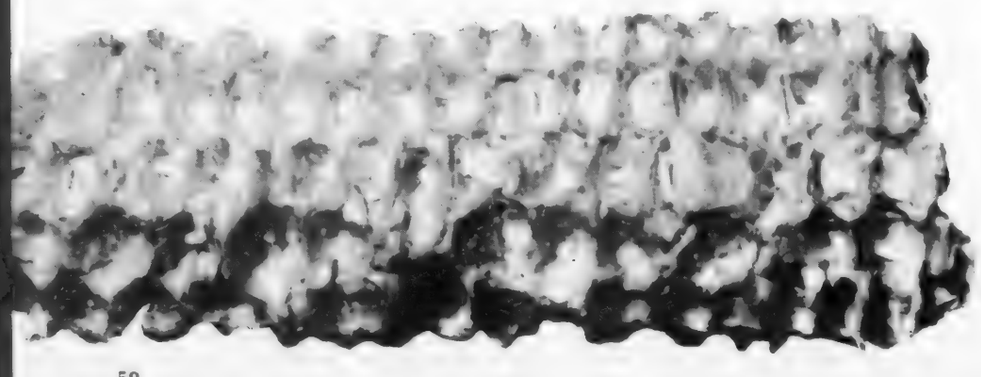
Reducing losses is largely a matter of timing. Early gathering cuts pre-harvest ear losses to a minimum. By slowing down ground speed, fewer ears are knocked off by equipment. Timing the harvest to conform to moisture content of between 26 and 30 per cent, and having equipment in proper adjustment will reduce snapping roll losses as well as sheller losses.

Here is what happens: Picker-shellers and most combines equipped with corn heads separate the ears from the stalk at the snapping rolls. If the snapping rolls are set wide to increase capacity and minimize plugging, small ears are crushed and lost instead of snapped. At more than 26 per cent kernel moisture, standing corn is tough; it snaps with difficulty and causes shelling of the ear butts at the rolls. This shelled corn is lost on the ground. Likewise, wet, immature corn shells inefficiently in the shelling compartment of picker-shellers and corn combines. Wet husks reduce the capacity of the sheller, cutting down on the capacity of the entire rig. Wet husks and cobs are not easily separated at the chaffer, screens and racks become coated, and the corn is not thoroughly cleaned. Cracking of kernels, sometimes to the point of grinding, occurs. Wet kernels adhere to the still wetter cobs which are not stripped clean. As the corn dries below 26 per cent, sheller difficulties decrease, but shelled corn losses at the snapping rolls increase. Minimum total losses are found in the moisture range between 22 and 30 per cent.



TYPICAL FIELD LOSSES FROM A CORN PICKER-SHELLER

The graphs (above) show the field losses which can be expected at various moisture levels. One other loss (below) is caused by kernel fragments which stick to the very moist cob.



Cranking Up

Extension workers' recommendations for beginning the harvest vary. Some Illinois research men consider 30 per cent moisture the proper start. By Iowa workers, 26 per cent has been suggested, and 22 per cent by California investigators. B. J. Lamp, Ohio State University agricultural engineer, suggests that harvesting moistures should conform to farming methods. As Lamp puts it, "Commercial corn grades take cracked kernels and foreign material into consideration. For No. 2 corn, the basic grade, cracked kernels and foreign material cannot exceed 3 per cent. Under average circumstances, corn field-shelled at 28 per cent moisture or higher will have too much cracked corn and trash in it to grade No. 2. If corn is to be dried and sold, it should be harvested as close to 26 per cent as possible. If it is to be dried and fed, 28 per cent moisture is suitable for harvesting. The argument by livestock men is that a little debris won't reduce feed value. However, heated air drying demands clean corn. The debris and cracked kernels in corn harvested at 28 per cent will make drying more difficult, and will encourage crusting, molding and insect infestation in storage unless it is fed out before warm weather. For livestock farmers who can store wet corn, 30 per cent moisture is satisfactory."

In Iowa, where wet corn storage has zoomed in popularity (see "Pickled Corn" on page 60), Larry Van Fossen, Iowa State College farm engineer, states, "In my opinion, at 33 per cent moisture, corn is about as mature and yields are about as high as they can get. For airtight storage, harvesting at from 30 to 33 per cent moisture is about right. Cracked corn and bits of cobs and husks will be an advantage in filling up the voids or spaces in the mass of wet, stored, shelled corn. More air will be excluded and keeping qualities improved."

Double Action

Gerald and Harold Gardner, young twin brothers who run a 500-acre operation near Monmouth, Illinois, have all types of corn-gathering equipment, but no dryer. For them, harvesting begins with the field chopper. First, the yield from 50 acres is chopped for the bunker silo. Then the self-propelled corn combine eats through the fields. It takes about 8 working days to fill their two 17 by 50-foot upright, glass-lined silos with a total of 16,000 bushels of shelled corn. Shortly thereafter, the standing corn has usually dried enough to be harvested by standard picker. Of the 480 acres grown this year by the Gardner brothers, 250 acres are to be picked in the ear for sale under contract to a seed company.

Gerald Gardner, the younger of the

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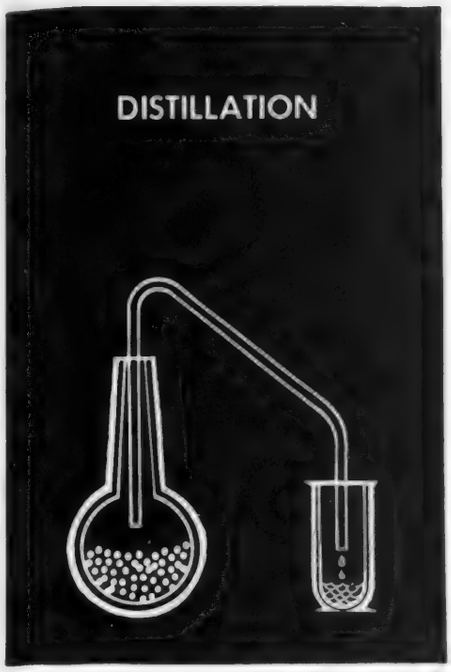

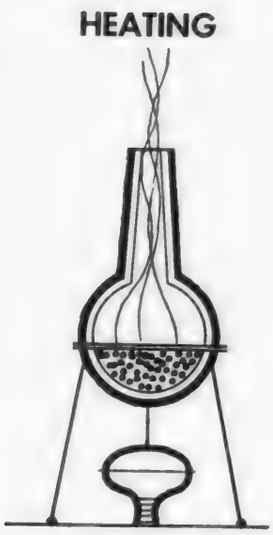

moisture testing

Without reliable moisture testing, field shelling, storing or drying grain are all a gamble on a guess

UNTIL RECENTLY, a farmer's built-in judgment was his primary means of determining when his corn was ready to pick, whether his wheat would keep in storage or his oats sell without excessive moisture discount. When his judgment was good and the weather right, he had safe storage and good prices for his grain —if he was off a few points on his guess, he ran into spoilage and discount.

Crop drying, of necessity, brought farm-type moisture testers which indicate the moisture content of the grain by distillation, by direct heat, and by electrical test. For safety, shelled corn should not be stored at more than 12 per cent moisture content; profitable corn sales require drying to 15.5 per cent. Not drying enough means discounted sales or spoiled grain in storage. Overdrying costs time and fuel along with unnecessary shrink. Often, a moisture meter has paid for itself in one season. Overdrying a 5,000-bushel corn crop to 13.5 instead of 15.5 per cent moisture, with corn at $1, could easily amount to 1 cent a bushel, or $50, for wasted fuel, plus 2 cents a bushel loss through shrinkage, or $100. And $150 would buy a reliable moisture tester.

As for price tags, George Butler, president of the Chief Grain Inspectors Association, has this to say, "In moisture-testing equipment, as with everything else, you get what you pay for. Don't expect a dollar watch to keep time like a precision timepiece. You can buy a moderate-priced tester that gives high accuracy. But it will take somewhat longer to make the test (about a half hour) than with a more expensive instrument, and will require some practice to develop the ability to get accurate readings. You can put $500 into a rapid, dependable tester. Or for a fraction of that, you can get a satisfactory instrument that will give quick moisture readings accurate enough for most grain operations on the farm. But don't think the mill operator who buys your grain is cheating you if his more sensitive moisture tester doesn't quite agree with yours. Farm-type testers should not be used for grain trading."

How Accurate Are They?

The most expensive models, most of which have been available for years, are suited mainly to grain elevator and other commercial uses. In general they are more accurate than economy models. However, with all makes and prices of machines, accuracy is a comparative thing. Many factors influence it. Some models are more accurate with certain grains; they may give a closer reading with corn, for example, than with oats. With some, the accuracy is limited to a low moisture range, and all models are less accurate as moisture nears or exceeds 30 per cent. In making a lightweight, low-cost tester, some sensitivity must be sacrificed. Portability itself does not imply lowered accuracy, but movement of the instrument tends to make it less reliable.

Accuracy of test is far different from accuracy of machine. Under field conditions, any instrument can go haywire. Setting the instrument out of plumb, vibrations, dew on the sample or grains which have been allowed to lose or absorb moisture, samples taken in an unusual atmosphere, or unrepresentative samplings give false readings not due to the machine.

The human element, of course, influences the test. An operator who gives careful attention to detail can make a reasonably accurate test with most of the machines on the market, just as a careless operator can fail to get a good test with the most precise equipment. No great skill is actually required in using any of the on-the-farm testers, but directions must be followed, temperatures read exactly, and pains taken to eliminate personal errors.

In time, even the best machine will drift from accuracy. Occasionally they must be standardized against a tester of known accuracy. For such checking of testers used in grain trading, the USDA requires a check against an oven-type tester, wherein moisture loss is computed by weighing a sample before and after heating it in an oven. The better model testers have simple adjustments for correcting drift or deviation. Some have to be recalibrated, with others new charts are supplied. A few manufacturers offer a service whereby their testers are kept adjusted as the need arises. Farm testers should be

(*Continued on page* 118)

PICKLED CORN

Airtight storage preserves high moisture sorghum and corn and improves the corn's feed efficiency

LAST FALL, when corn growers were picking corn so wet that every load was full of worries, Floyd Waltz was far from worried. In spite of the fact that he picked his 4,000 bushels of corn too wet to crib safely, he let word go out around his Edinburg, Indiana, neighborhood that he was actually in the market for soft corn.

Growers for miles around hauled in some 17,000 bushels of corn of up to 35 per cent moisture content and Waltz took it off their hands at market price and was glad to get it.

Waltz had moved out of the stage where he cribbed his corn and crossed his fingers. He finally had the equipment to store wet corn safely and end up with feed that was palatable to his cattle and profitable to him. His answer was to by-pass the cribs and store wet corn in the silo.

And this is a fast-spreading solution to the high-moisture corn problem. Throughout the Corn Belt a growing number of farmers are learning that they can store corn in an airtight container, let it ensile, and end up with a feed even better than stock get when they eat regular dry corn.

This plan offers several advantages and the biggest one is the saving in feed. You don't have to worry about moisture content and you don't have to fret about spots of spoiled corn showing up in the crib. "When good corn is stored in an airtight silo or bin," says Floyd Waltz, "you know it's safe until you take it out and spread it in front of the stock."

Almost as important in this day of fast-paced farming are the big savings in labor. If you have the facilities for airtight storage of corn and you use it only for feeding you can forget about artificially drying the grain and the extra handling this operation entails. And, because you can grind corn right into the silo as it comes from the picker or picker-sheller, you no longer have the chore of removing grain from bins and grinding it fresh for feed.

There are times, during seasons of late planting or early frosts, when picking corn with high-moisture content becomes a necessity. But even in normal seasons there are some advantages to picking early when the corn may carry 30 to 32 per cent moisture. At these earlier dates stalks are stronger and there are fewer dropped ears and less loss from downed corn. And this gives a better chance to make full use of the stalks for pasture or silage before they're damaged by snow or late fall rains. In addition, the early picking can get the corn off the land in time to seed a wheat crop.

Andrew Parmalee, a neighbor of Floyd Waltz who helped him construct his new wet corn feeding set-up, saw still another advantage in the idea. "I'm getting old enough," he said, "that I'm beginning to think about doing less work. I can grind corn right into the silo. Then I'm going to build a feed bunk with conveyors in it so the grain will be automatically unloaded from the silo and carried right to the stock without additional handling. All I'll have to do is push buttons and haul out the manure. I can feed my cattle in a few minutes a day," he adds, "and you reach an age when that's important. This way I won't have to give up farming entirely."

These were some of the possibilities when stockmen and silo manufacturers began surveying the wet corn silage picture. Actually, says T. A. Meyer, managing director of the National Silo Association from his office in Louisville, high moisture corn silage is not new. It goes back to a bulletin published at the University of Illinois in 1914. But in recent years the interest in this corn storage plan has skyrocketed. The three things which have been largely responsible are the development of the picker-sheller, unusual weather conditions, and the advent of the airtight silo.

But for some years now farmers have been storing wet corn in conventional silos regardless of the type and doing it successfully. Most silo manufacturers have been selling silos for this purpose, especially in the Corn Belt states.

How Does It Feed?

Only one set of questions remained to be answered. Did corn, ground or shelled and ensiled, measure up to dry corn as a feed?

The first group of experiment station workers to take a close look at this question was a team of research people at Purdue, W. M. Beeson, R. E. Honnold, and T. W. Perry of the department of animal husbandry. After some carefully controlled checking, these researchers came forth with the good news that the wet corn made an even better cattle feed than dry corn.

They uncovered this fact by a series of two trials in which they fed groups of steers and heifers both kinds of grain under care-

fully controlled conditions. In the first trial they divided 40 head of two-year-old steers into four lots of 10 steers each. Some of the animals were fed on ordinary dry corn and others were treated to high moisture ensiled corn. The corn for all of them came from the same field and the wet corn was picked almost a month earlier than the dry corn. The first was stored with a moisture content of 32.2 per cent and the later picking contained 17.7 per cent. There was no spoilage of either picking. The big difference at feeding time was the corn stored wet in an airtight silo came to the cattle as silage with what the researchers described as an "excellent aroma."

Apparently the steers agreed. After a second and similar test feeding, Dr. Beeson and his co-workers reported that fattening beef cattle fed on 32 to 33 per cent moisture corn ensiled in an airtight silo made 10 to 15 per cent more efficient gains than those fed on ordinary dry corn.

Then Iowa animal husbandry research people checked the feed values and came up with practically the same results. In the Iowa experiment with 72 yearling steers, corn harvested at 30 to 32 per cent moisture was worth 10 cents more per bushel as feed for fattening cattle than low moisture corn harvested from the same field. The high moisture corn saved about 8 per cent in feed costs or 1.3 cents per pound of beef produced. This 8 per cent saving was roughly the same as the saving in lots where stilbestrol supplement was fed in the experiment.

What's more, in high moisture corn test feeding lots where stilbestrol was fed, the two savings combined for a total of 16 per cent savings. Here was evidence that these two were separate and that a cattle feeder could take advantage of both.

Additional research in this field is being conducted or is getting under way at the University of Illinois, Michigan State University and the University of Kentucky.

Most of the research with high moisture corn, so far, has been with feeder cattle. There is no reason to think this ensiled ear corn wouldn't make an excellent feed for dairy animals. In one experiment with hogs there was evidence that hogs make less efficient gains on high moisture corn than do cattle. In this Purdue test, hogs fed on high moisture shelled corn utilized the feed with eight per cent less efficiency than they did ordinary dry corn.

In Tama County, Iowa, however, Russell Brandt has for four years been feeding both cattle and hogs on high moisture corn stored in silos. When questioned by representatives of the National Silo Association some months ago, Brandt was feeding 315 head of beef cattle and 260 head of hogs. "I have two silos," said Brandt, "a 16x50 in which I store ground ear corn and a 14x50 in which I store the shelled corn." He rents three silos for corn silage for roughage feeding. His 16x50 holds about 6500 bushels of ground ear corn and the

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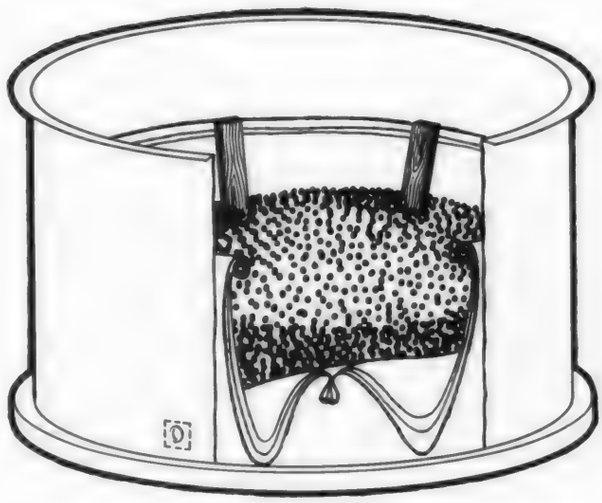


Air is the spoiler of damp corn or sorghum. Exclude it and the grain goes through a fermentation process which preserves it. Airtight storage can be had in two silos now on the market, the Harvestore (opposite) and the Silver Shield. Concrete silos and grain bins can also be made airtight by using plastic. A grain bin liner (above) has been formed by sealing the edges of a plastic sheet to form a tube, tieing one end, rolling like a stocking, and inserting into the prepared bin. Paper liners and plywood protect the plastic from being pierced by bolts or other rough spots on the bin. Sticks hold the rolled edge of the plastic liner against the side of the bin as it is loaded. By sealing the doors and capping the grain with plastic (below) a regular silo can also be used. Preformed silo caps or sheets of plastic can be used for the cover.

By Charles R. Koch

James Monroe Smith was the most expansive of post-bellum Georgia planters. Legend has it his ambition was to own...

"All the land that's next

MODERN ROAD MAPS of Georgia indicate in the smallest possible type a spot called Smithonia at the junction of two unimproved roads in the northern part of Oglethorpe County.

This dusty crossroads was once the center of the fabulous old Jim Smith plantation. Today it is adorned with a low, weather-beaten country store squatting behind a narrow veranda, with the inevitable gasoline pump standing like a gaudy monument at the side of the road. Directly opposite the store is a big, square, two-story, white frame house almost hidden behind the towering pecans and oaks and magnolias that shade its lawn.

Thin, short, slow-moving, slow-talking T. H. Hancock presides over the store. With his cane-bottomed chair tilted against a counter T. H. lets customers help themselves to a Coke, a bag of feed or a package of chewing tobacco, makes change from his pocket, and regales native and stranger with fantastic tales about the hotel across the road and the legendary Jim Smith who built the once vast and thriving agricultural empire of Smithonia.

James Monroe Smith is a legend in north Georgia. But there is no doubt that old Colonel Jim was a very real character—an organizer and manager extraordinary—and that his Smithonia plantation was the largest and most productive in post-bellum Georgia, if not in the entire South.

In its hey-day it contained over 20,000 acres, fanning out from the mile square town which was its commercial center. About a mile north of the crossroads still stands the long, white house which was the Marsa's residence. It originally contained 20 rooms, had a fireproof vault—which is still extant—and in a day when such luxuries were a rarity even in town, it boasted hot and cold running water, acetylene gas lights and steam heat.

The plantation had its own schools, railroad, cotton gin, brick works, sawmill, corn and wheat mills, cotton seed oil mill and refinery, guano (fertilizer) plant, and a blacksmith shop with "a trip hammer, mould for shaping up plows, steel shears for cutting cold steel, three furnaces, tire shrinker and all kinds of tools and machinery for woodwork." These items were detailed in a booklet published by the Colonel in 1912 when he was thinking of retiring.

The hotel at the crossroads was built to accommodate the continual stream of visitors, salesmen, buyers and professional advisors to the Colonel. Rooms were $1 per night (without bath); dinner 40 cents.

A commissary on the plantation did a $50,000 a year business, and the general store in the town, an emporium also operated by Colonel Jim, was said to gross around $100,000.

Meet the Marsa

The master of this realm was a bachelor. He is remembered as a heavy-set, grey-bearded patriarch of medium height with a wen as big as a cabbage on his neck. He weighed over 200 pounds in his prime, but carried no excess fat, had a big, gross body and hands like hams. He usually draped a kerchief around his neck, and in cool weather wore an ill-fitting old coat which "looked like it had been tailored on the farm," according to Harry Hodgson, a retired manufacturer of Athens who used to sell him fertilizer materials. "But," says Hodgson, "I saw him at a funeral once when he was all dressed up and he was a truly handsome man."

Jim Smith was born in Wilkes County, Georgia, in 1839, the son of Zadok Smith and Phoebe Boatwright Mabry Smith. Jim's mother was Zadok's second wife; she also had a daughter, Mary Mabry, by her first husband. Zadok, a widower when he married Phoebe, had four sons by his first wife. He outlived Phoebe and took unto himself a third helpmate, but from that union there was no issue. This genealogy had a tremendously important bearing upon one of the most interesting facets of the Jim Smith career; namely, the settling of his multi-million dollar estate. But that comes later.

Young Jim went to work on his father's farm as soon as he could swing a hoe. He got his early education in the old field schools after crops were laid by, and graduated with honors—there were only two in the class—from Hiawasee College in Tennessee just before secession precipitated the War Between the States. He seems to have been aiming at a teaching career, but the legends have it that he studied law, medicine, in fact just about everything but nuclear physics.

He found himself in the Confederate in-

(*Continued on page* 98)

The veranda of his 20-room mansion was Jim Smith's fair weather office. From that spot the grey-bearded, bachelor patriarch (opposite page) directed all the activities of his 20,000-acre plantation empire, which included its own railroad, cotton gin, brick works, sawmill, cottonseed oil mill and refinery, guano plant and blacksmith shop. A Negro boy was always at hand to lace an open shoe or carry a message to one of the overseers in the field. Marsa Jim provided schools (right) for the children of the hands. After building the Smithonia and Dunlap Railroad to connect with the Georgia Railroad south of his plantation, he later built another line to connect with the Seaboard so he would get competitive rates. The Brooks locomotive was the pride of the plantation. The immobilized, weed-surrounded combination coach (below), as it looks today, is the sole relic of the days when the Colonel would roll down the line in style to meet the express at the junction. With her stained-glass transoms and brass-railed platforms she was a wheeled palace when Smith bought her from an Indiana car shop for $2,500.

to mine!"

GRUB RUB-OUT/an inside job

Systemics can control an ugly white grub which spends half its life eating its way through cattle flesh and hide to the tune of more than $100,000,000 annually

ASK THE TANNER. He will hold up a bend of leather, scar-spotted in the thickest, sole-leather part of the hide. Ask the meat packer. In mid-April he can seldom find a carcass without 25 pounds of yellow, rotten, gelatinous meat, where the cattle grub larvae eased their way through cattle flesh.

Ask the animal. Ask him how he likes 30 or 40 grubs the size of a .45 slug eating the tender muscle of his back. He can only show you. Show by rubbing the offending back against post and rail; show by reduced gains in feed lot; show by throwing up his tail and running like a half-shot rabbit when the adult heel fly comes near him. He'll run off many a butcher's pound to avoid a fly that can't bite. He'll run into fences and cut himself open on barbed wire. Or he'll stand belly-deep in a muddy water hole to keep off the fly, and make himself prey to every moisture-loving virus from leptospirosis to Bangs disease.

The cattle grubs, or ox warbles, live a sheltered life deep in the living steer for five months of the year. They feed in the animal and gather around the gullet or the neural canal, on a lengthy trip to the back. Then for four to six weeks they gather in the familiar bumps under the hide, mature, emerge, fall to the ground to pupate, becoming the adult fly three months later. The adult fly lives only a week, mouthless, having a breeding, egg-laying spree. Control is well-nigh impossible. The eggs are laid on the hairs of the legs and belly, and the grubs hatch in less than a week to return to the warm wet inside of the animal—their meals and overcoats wrapped in one.

Before systemics were developed, the larvae were vulnerable only when they reached the back of the cattle, and lived, tail up, breathing from the hole they had eaten through flesh and hide. They were poisoned with a rotenone slurry sprayed or brushed fiercely over the holes when the grubs appeared.

The latest attack on the grub takes place the moment he sets a wriggling nose inside the tissue of his host. For the new poisons are systemic, selective poisons, flowing in the body fluids of the steer, harmless to the host, swift death to the pest who dares to bite.

Two such chemicals are on the market. Several are in experimental stages. The two available are Trolene, as a pill or bolus, Co-Ral as a spray. Co-Ral is a 25 per cent wettable powder, used as a spray; the product of the Chemagro Corporation of New York. Trolene comes from Dow Chemical Company, Midland, Michigan. Both grubicides, new to the United States, are available in all cattle-producing areas.

Trolene has had the widest commercial testing, but the spray, Co-Ral, has been shown to be equally effective and may come into wide use. This spray must be applied at high pressure, to blast through the hair and thoroughly wet the skin of the animal, through which the chemical must be absorbed to be effective. The spray will kill grubs and screwworms, as a systemic, and external lice and flies as a contact killer. Tests have shown a 10-20 day life as a contact insecticide, enough for most wounds to heal, preventing re-infection with screwworm.

The thumb-sized bolus of Trolene has had wide trials in many states. Hundreds of farmers have run steers into cattle squeeze chutes, and held their heads while the balling gun ejects an oiled bolus behind the hump in the animal's tongue. The job is easily done after short instruction with the only tackle necessary—a holding crate and a $6 balling gun.

The systemics, bolus or spray, are used at any time after the grub has entered the animal, but before it has reached the animal's back. This means July to September in the southern United States and August to October in the North. The systemics are very rapidly absorbed into the system—they appear in the bloodstream a few hours after dosage. Then they are slowly excreted in manure, urine and milk, until, sixty days after treatment, all traces of the poisons have vanished. For this reason milking cows can only be treated if they are dry for sixty days after treatment—although cows suckling calves may be treated with no harm to the calf. All other cattle may be treated up to within sixty days of slaughter. However, if a human should consume some, it would take a massive dose to cause trouble.

The use of systemics helps the farmer where the grub hurts him most—in the pocket. As tests continue, and over 100,000 cattle have taken Trolene, the evidence piles up to show, overwhelmingly, grub-free cattle are a better bet than their grubby siblings. Dr. Earle Raun, of Iowa State College at Ames, ran a test with 77 treated steers, 77 untreated. The group dosed with Trolene gained an average of 2.48 pounds a day for 106 days in feedlot, the unpilled steers gained 2.33 pounds a day. A California feed lot test of two groups of 25 animals reported gains of 1.57 pounds daily for treated cattle, 1.22 pounds for untreated. A Kansas test of over 450 cattle, half treated, half not, showed the treated group gained a quarter of a pound more daily than those without the systemic. On slaughter the treated bunch were worth $5.71 more per head than the others. This left little question about the value of a process that costs between a dollar and $1.50.

But the merit goes far beyond the farmer's paycheck. Government-sponsored drives to control the grub in several states and many foreign countries have shown complete control in an area can

(Continued on page 82)

While a steer may not exactly enjoy a spell in the cattle squeeze, it's a safe bet he takes to it a lot more readily than the oozing sores along his back from which a cattle grub can be coaxed.
He'll gad, tail-up, from the adult heel fly, which doesn't bite or sting, because something makes him fearful. How many generations before that something persuades him to meekly allow the insertion of the bolus that kills the grub before it hurts?

Lush productive fields like this alfalfa meadow belonging to Harry Reed, of Cheyenne, now grace the banks of Sandstone Creek in western Oklahoma. Before the upstream flood control program the scene all too frequently looked like that on the left. Here the Washita River, the main stream of the area, sweeps its flood waters over land which might have produced a rich harvest of cotton or wheat. Land improvement measures and the installation of detention structures have tamed these streams and permitted the full use of the bottom lands.

By Charles Straub

LITTLE DAMS STOP BIG FLOODS

With the help of conservation little dams bring new life to streams which formerly flowed only when the rain fell

SANDSTONE CREEK is an insignificant tributary of the Washita River in western Oklahoma. It drains some 65,000 acres of shaley upland range and flows its placid way to the main stream through winding channels skirting productive meadows and cotton and grain fields.

But things were not always like this along the creek. There have been innumerable times when angry, rushing waters roared between the red banks and overflowed the entire lower valley.

A few miles above its mouth the Sandstone cuts a graceful crescent along a hay field which, with the help of irrigation water pumped from the creek, yielded five whopping cuttings of alfalfa this year. That field belongs to veteran farmer Harry Reed. It is part of the 75 acres of alfalfa he grew this year on his 1,080-acre place east of Cheyenne, a spot where General Custer once ran a preview of his massacre—in reverse.

As Reed greased his mower preparing to start on that lush first cutting this summer he recalled the year he rebuilt the fences in that valley nine times. Every hard rain brought a flood and each flood took the fences. And each time the waters receded, the fields were buried under a new layer of silt. Upstream a short piece, an old harrow can be seen sticking out of the bank five feet below the present level of the field.

Reed remembers just such a storm as buried that harrow. His eyes sparkled from behind his sunglasses as he put the grease gun back in its bracket and rubbed his well-browned hand down the side of his overalls. "Back in the summer of '30, we had a beautiful field of wheat here in these bottoms. It stood right up to here," he said, as he drew an imaginary line across his chest. "We had our binder in here and were ready to go to work when we saw a big, black cloud coming up. We quit before lunch and went back to the house. The storm hit and after that it was three weeks until we could get back to the binder and dig it out of the silt. That silt was so deep that when we walked over there the wheat above it came no higher than my knees."

"But that doesn't happen any more," he continued. "In May a year ago, just to give you an example, we had a real gully-buster, a five-inch rain. The creek went up to half-bank and then it settled back and ran about two feet deep for 8 or 9 days and that was all there was to a flood that in the old days would have been the end of this alfalfa."

Water in Torrents

The "old days" in the lexicon of Reed and his neighbors was before the organization of the Upper Washita Soil Conservation District, and the development of the Upstream Flood Control Project on Sandstone Creek. In those days crops in the creek bottoms had about as much chance of maturing—or even of getting started—as watermelons on Hudson Bay. All the cotton was grown on the hillsides, some wheat and corn was planted in the bottoms on the chance that they might make it, and there was a lot of Johnson grass in the area. If the corn and wheat were washed out, cattle could be turned on the Johnson grass.

So far as the water was concerned, it was feast or famine, flood or drouth. But such a situation is not confined to the Sandstone. It is typical the country over. The farmer sees his crops withering away in the drouth; the rancher's gaunt cattle drag themselves through the mud flat that was once a pond bottom to suck the last few precious pints from a rapidly disappearing waterhole. Both farmer and rancher pray for rain. Then they get a toad strangler that plows out gullies in their hillsides, rips up their fences, submerges their bottoms, buries their wheat and corn and cotton and hay lands under stinking, sterile layers of silt and washes their livestock to a watery grave downstream in the next county.

There are two basic ideas on how these destructive surges of water can be controlled. The one looks to big dams and levees constructed well downstream to catch the rising waters and hold them away from the cities. The other advocates a large number of relatively small detention structures on the headwaters and tributaries coupled with good land management practices.

Partisans of this latter principle argue that the big dam approach leaves upstream towns and farmers and ranchers completely unprotected; that it necessitates the permanent inundation of hundreds of thousands of acres of the richest bottomland and the abandonment of farms and small towns along the floodplain; and that the huge lakes behind these big dams are so subject to silting that they may become worthless within one generation after they are built.

No one denies there is a lot to those arguments. But will the upland programs with many small dams do the job? The Upper Washita area is a good place to seek the answer. And the answer is "Yes."

The Washita is one of those wide, shallow, aggrading rivers of the plains. It rises in the Panhandle of Texas and winds between its low banks for more than 600 miles eastward across Oklahoma, emptying into man-made Lake Texoma and the Red River in the southeastern part of the state. It has a history of violent, destructive floods, 72 per cent of the damage occurring

along the small tributaries. As a result of the Flood Control Act of 1944, the Washita was one of 11 river watersheds selected for action.

It was divided into 64 creek watersheds each averaging about 125 square miles in size. The Sandstone Creek Project, in Roger Mills and Beckham counties, the first to be completed, is the World's First Upstream Flood Control Project. The construction work was started in 1950 and was largely completed by 1952.

There are in all 20 subwatersheds under the supervision of the Upper Washita Soil Conservation District, bearing such colorful local names as Dead Indian, Wildhorse, Broken Leg, Big Kiowa, Quartermaster, Beaver Dam and Barnitz.

The upstream programs use two distinct measures in their approach to flood control—land improvement works and mechanical structures. The land improvement includes terraces, field diversions, cover cropping, strip cropping, contour cultivation, seeding native grasses, fencing of grassland, building farm ponds, and improved range management.

The mechanical structures are primarily detention reservoirs and gully plugs. These plugs, which are themselves small reservoirs, slow the runoff flow through deep gullies and filter out the silt, keeping most of it from piling up in the larger detention reservoirs. Eventually they fill themselves with silt and heal over the gullies.

Jack Rhoton stacks his Caddo switchgrass hay. In addition to the hay, he combined 307 pounds of clean seed per acre, sold it for $2 to $3 per pound.

The land treatment is basic to the plan and the law that authorizes federal assistance on these projects requires that at least 50 per cent of the area above the reservoirs must be under conservation plans before construction can begin on the structures. Why build lakes, Congress asked, only to fill up with mud?

The 65,000 acres of the Sandstone watershed has been blanketed with 127 farm conservation plans prepared with the help of the Soil Conservation Service technicians. These apply to 58,900 acres. There are 13 gully plugs and 24 detention reservoirs with flood storage capacities ranging from 78 to 3,580 acre feet. The earthfill dams for these reservoirs cost an average of $50,000 each with the federal and state governments paying the entire cost. The land owners have no expense except to provide the easements for the sites of dam and pool.

Each reservoir, as Fred Whittington, range conservationist of the Soil Conservation Service, explains, is like a gigantic bathtub. It has a very large detention pool like the area above the overflow in a tub, and a smaller permanent or sedimentation pool which corresponds to the area below the overflow. The idea is that the runoff from a torrential rain will fill this detention pool and will be released automatically and gradually through a draw-down tube which feeds it into the channel below the dam no faster than that channel can handle it. The water which remains in the reservoir below the level of the draw-down tube affords a supply for stock water, irrigation and recreational purposes. To revert to the bathtub example, the reservoir, unlike the tub is designed to trap much more water above the overflow than below as can be seen in the diagram on page 70.

The detention pool is designed to hold back at least the maximum runoff to be expected once in 25 years—usually estimated at a single rain of 3 to 5 inches. Then there are spillways designed to handle the flood of 100-year frequency when the detention pool is filled.

In outline these are the measures which it was hoped would convert Sandstone Creek, and eventually all of the Washita, from a liability into a valuable asset. That they have been applied and have worked is evident from the present condition of the area and the testimony of farmers, ranchers and conservation people who had the vision to initiate the program and the perserverance to carry it through and who are now reaping its benefits.

The Sign Up

Still, ideas like this, no matter how sound and promising, are never easy to sell. This is essentially a community project. The community must decide it wants a flood control program and petition the state and federal authorities to implement it if the preliminary surveys confirm the need.

Then, neighbors must cooperate in granting easements for the construction and maintenance of the dams and reservoirs which invariably spread across the land of several title-holders. The average site in this locality of moderate-sized holdings involved the signatures of five grantors. Some required 20 or more.

While a conservation district, once established, is a political subdivision with the power of eminent domain—the right to condemn private property for public use—this right is exercised very sparingly, if at all, by the district. About the only time the Upper Washita supervisors (a board of supervisors directs the activities of the district) have resorted to it has been where court action was necessary to clear title.

Pipe-smoking Curtis Murphy, a Foss, Oklahoma, rancher and one of the district supervisors, whose round face and short frame reveals his ancestry as surely as his name, has specialized in signing up easements. He has always gotten his signatures, but there were times when it was not easy—like the time he signed up three quarreling neighbors who refused to speak to each other. "Lots of times," he says, "just when you think you are going to get the most help, you get shoved right in the creek."

But no construction is started until 100 per cent of the landowners involved have signed the easements. Murphy has observed that "if you get a bunch of them signed up they help pressure the others. The non-signers soon are afraid to come to town. If you sign part and start the dam work you'll never get the rest of them.

"One crowd we've had wonderful cooperation from," Murphy continues; "is the county commissioners." He likes to point to one spot on the Barnitz watershed where the county road used to cross a draw on a long bridge, a bridge, incidentally, which used to be washed out regularly. The project planner decided this was the perfect place for a detention dam, so the commissioners gave them the easement and shaled the road on top of the dam. "The commissioners know a good thing when they see it," Murphy insists. "They used to have to maintain a lot of expensive bridges all over the county; now they get away with tin whistles—pipe culverts four or five feet in diameter."

Suave, grey-templed, young Robert Allee, rancher and banker of Elk City and a keen supporter of the work, admits he "wasn't at all interested at first. I couldn't see why I should give the Federal Government 80 acres for a water hole, but I finally agreed that if others would get in I'd give the land."

It did not take long for Allee's reluctance to turn to enthusiasm. He operates about 10,000 acres including a large piece of rich bottom land downstream from this dam where he has a 150-acre cotton base and 909 acres in wheat.

"I used to feel lucky if I harvested one crop in three on that land," he says, "but since the completion of the program I

From a creek which used to go dry as soon as the flood had passed Harry Reed now irrigates his alfalfa. He gets five big cuttings of hay or two cuttings of hay and as much as $140 of seed per acre.

have not lost a crop on the Sandstone. Up until two years ago if a man had told me you could raise 50 bushel wheat out here even on a small piece I'd have told him he was crazy. Now we average 32 bushels on 909 acres.

"My father used to do a lot of upland farming," he points out, "but I've taken my farming to the bottoms where it belongs. I've put diversion ditches on those uplands, reseeded them and reduced the size of my herd and I feel I'm on the right track."

Jack Rhoton, who farms what he calls "a short section" on the Sandstone above Harry Reed's place, is another who greeted the announcement that a piece of his land had been selected for a dam site with something less than unrestrained joy.

"I raised the devil about it," the lanky, balding, young farmer recalls with a grin. "There was nowhere you could go to see what one of these things looked like and I was skeptical."

He finally signed, though, and does he regret it? "Not on your life." Dam Number 11 with a permanent pool of 92 acres behind it is on the Rhoton property. By means of a sluice gate the water from this pool can be tapped for the benefit of the lands below and Jack Rhoton sends it down through the creek when he needs it and uses it for irrigation. Silage sorghum, alfalfa, and Caddo switchgrass are his specialties. The silage and alfalfa he uses to winter calves; from the switchgrass and the alfalfa he gets a rich hay harvest and a crop of certified seed.

He feeds calves because, as he puts it, "I grazed out all my grass during the drouth, so I sold all my cows to give my range a chance to come back. I have no cattle on the place at all during the summer." But he makes up for that during the winter buying 500-pound yearlings in October and putting a pound a day on them until the following May on a hay-silage ration.

On a 24-acre bottom field which formerly was at the mercy of the floods he made 20 tons of sorghum silage per acre last year with the help of surface irrigation. He put up a lot of silage for neighbors who had not irrigated and "it wasn't worth the expense of cutting it," he says.

He seeded his switchgrass the middle of May in 40-inch rows and cultivated with a tool bar cultivator, plowing out the middles and hoeing the rows for Johnson grass. He irrigated the whole field once and part of it a second time. Results, 1600 pounds of hay and 307 pounds of clean seed per acre. The seed sold for $2 to $3 per pound.

The Other Side of the Coin

Harry Reed's story shows the other side of the flood control coin. For controlling the Sandstone has not only stopped floods but has helped raise the water table and kept a steady flow in a creek that used to be bone-dry most of the year.

Reed and a half-dozen or more like him can now pump their irrigation water right from the creek. "It used to be," he points out, "that a 3 or 4-inch rain would put the creek on a bender and a week later she'd be dry. Now she runs almost all year 'round and we can pump water 24 hours a day 11 months out of the year."

In 1957 Reed made better than $140

per acre on his alfalfa seed after taking two cuttings of hay off the field because of irrigation. A neighbor who did not irrigate made only $40 worth of seed per acre and another neighbor who had irrigated his land the year before and probably had some carryover of moisture made $100.

Water Under the Bridge

The flow of Sandstone Creek tells a very significant story. Beginning on February 7, 1952, the creek flowed 99 days until the middle of May. It was dry until December 8 when the flow again started and continued until June 11, 1953, for a total of 162 days. Then it dried up until November 19, on which date it again started and flowed for 234 days, drying up on July 10, 1954. On November 1, the water began to run again and flowed continuously for 605 days, finally drying up in July, 1956. The last rain during that period was on October 4, 1955.

This continual improvement in flow was despite subnormal precipitation. Normal precipitation for the watershed is about 25 inches per year, but during the period cited the actual precipitation record was as follows;

Calendar Year	Inches of Rain
1952	13.32
1953	20.09
1954	16.80
1955	26.00
1956	11.98

One of the most amazing sights to any visitor to the watershed in the late spring or summer is the confluence of Sandstone Creek with the Washita River. Above the mouth of the creek, the Washita, which drains over 600,000 acres of land up to that point, is dry as dust. Below is a steady stream of clear water coming from the 65,000 acres of the Sandstone watershed.

Upkeep

The building of the structures is only the beginning of a watershed program. After that comes maintenance which demands continual care. The District, through its Board of Supervisors, is solely responsible for the expense of this work and its careful performance.

One of the men who has contributed most toward putting the Upper Washita District on a sound financial footing while at the same time promoting upstream flood control work all over the country is L. L. Males, the Cheyenne banker. With the assistance of his diminutive, dark-haired wife, "Red" Males has barnstormed the land with his illustrated talks telling the story of the local project and selling the program in areas which are stricken with the same pains which formerly plagued the Sandstone.

Males has his own farms; but nowhere is he more at home than behind his desk in that little red brick bank in the center of Cheyenne discussing crops and livestock prospects with his clients and advising them on their financial affairs.

One of his proudest boasts is the sound financial condition of the Upper Washita District and its maintenance program. As of this spring it had $90,000 in equipment and operating capital. "It is up to the individual districts," Males explains, "to maintain the structures and even to condemn and buy the land for them if the owners won't donate the easements. Our income is from grass seed.

"We originally got a few grass seed drills from the Federal government for about $1000 each. We have encouraged the local farmers to grow the native grasses for seed and we buy the seed at the going price and resell it together with a seeding service to those who are rebuilding their ranges. Some of it the district buys itself to use on the dams. We charge $7.75 an acre for the use of the drill and include the seed with it. Currently the ASC is paying up to $6 of this cost, so the actual outlay to the landowner is only $1.75 per acre, plus his fuel, time, and equipment."

Last year the district handled 170,000 pounds of grass seed and from the first of January to the middle of May this year they seeded 20,000 acres. They handled $150,000 worth of seed on a 5 to 10 per cent markup.

The district now owns 28 grass seed drills, 2 land planes, several fertilizer spreaders, large inventories of seeds, and a couple of seed warehouses.

L. L. Males (above) a Cheyenne banker, is a district supervisor and a volunteer propagandist for the watershed idea. The bottomlands which yield 32 bushel wheat (right) were fields of Johnson grass until the creek was brought under control.

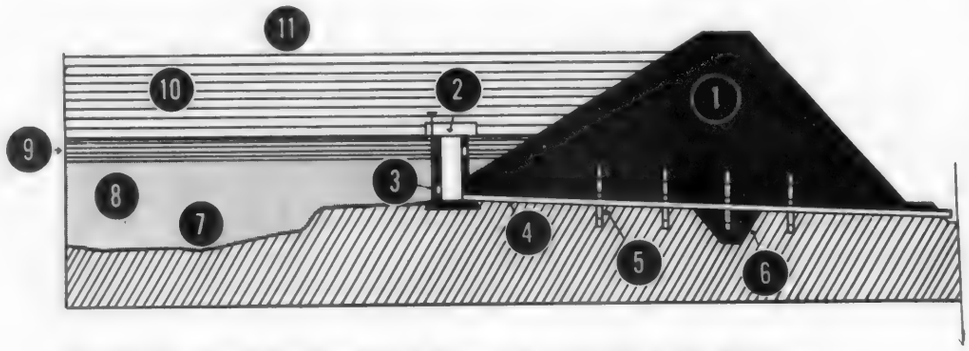
A New Cloud

Folks on the Sandstone and Barnitz projects have learned to look on those ominous thunderheads that build up on their western horizon with the same indifference as a snake charmer serenading his defanged cobra. But this spring a new cloud cast its shadow over their new-found security. This is a law suit filed by the State of Oklahoma in the District Court of Caddo County on behalf of the Bureau of Reclamation. Its object is to adjudicate the water rights of each of the hundreds of individuals who claim to have an interest in the water draining into the Washita River —all the farmers and ranchers on the upstream projects who have reservoirs or wells on their land or who water their stock or irrigate their fields out of the streams.

The Bureau of Reclamation is charged with constructing two big dams on the Washita at Foss and at Ft. Cobb. These are to be multi-purpose structures designed not only to prevent floods but also to provide recreational facilities, municipal water supplies and irrigation water for these downstream communities and farms.

But there seems to be an inherent conflict between these dams and the upstream projects. For if the upstream projects live up to the expectations of their planners in controlling flood waters it may become difficult to justify the huge expenditures needed for the big dams down the river; furthermore, if the people downstream

(*Continued on page* 120)



The dam for a typical detention reservoir is shown in cross-section in this diagram. 1 is the dam itself ; 2, the outlet, or drawdown tube ; 3, the drain valve through which water can be released from the permanent pool ; 4, the outlet pipe ; 5, the anti-seep collars ; 6, the core trench ; 7, the borrow pit from which much of the earth for the dam is taken ; 8, the permanent pool ; 9, the sediment reserve ; 10, the detention pool which holds back the runoff after a storm ; and 11, the spillway level, well below dam top.

ADJUSTING TAXABLE INCOME

Farmers can't average taxes over the years, but they can save by spreading income and expenses

By Jack R. Miller

EVERY YEAR a good many farmers overpay their income tax. Others don't pay all they should—and are caught. The great debate between taxpayers and the government started when income taxes were first levied and probably will continue as long as taxes are collected. From time to time the courts settle some of the arguments in the debate. Others are settled in Congress which, seemingly just to make things more complicated, is constantly changing the tax laws.

There is no doubt over the government's right to collect additional taxes when it discovers such transgressions as unreported sales, deductions for items that were capital investments, or the use of excessive depreciation rates. On the other hand, the farmer has won some battles in the courts and in Congress in his constant search for tax justice. One major victory has been the pin-pointing of legal methods of adjusting his taxable income.

Shifting Income

The farmer's dependence on the ever-changing weather and markets often throws him into high tax brackets one year, drops him to little or no tax the next. If he could average his income over a period of—say five years, his total income tax would be far less than under present rules. As yet, the law does not permit the averaging method, but there are some lawful steps that can be taken to shift income from one year into the next, when it appears the following year will show a lower income yield.

Grain farmers accounting on a cash-basis, now have been told by the Internal Revenue Service that even though they deliver their grain to the elevator before the end of the year, they can list the sale in the following year if (1) they do not receive payment until the following year, and (2) they have a bona fide provable contract (preferably in writing) that the buyer will not pay for it until the following year.

The second point is vital. Farmers who have delivered grain and declined to accept payment until the next year have been successfully attacked by the Internal Revenue Department on the ground they had the power to demand and receive payment before the end of the year, and therefore had "constructively received" payment. This power is removed under a contract such as that suggested.

Livestock farmers would appear to have a chance for similar treatment. However, the sale of livestock would have to be made to an independent buyer—not through a commission firm under the jurisdiction of the United States Department of Agriculture. The money from any sale made by such a commission firm must be paid to the seller by the next business day after

Depreciation is a major tax item. New or reconditioned buildings and equipment can now be depreciated on a declining balance schedule. A fair disposal value should remain when livestock are fully depreciated.

the day of sale. And, since the commission firm is merely the seller's agent, the sale is made when the buyer pays the commission firm, even though the farmer may not receive a check until the following year.

Income from labor or custom work or from produce sold during one year can usually be deferred until the next merely by waiting until the end of the current year to bill the customers. Their payments early in the following year then become income for that year. However, if the taxpayer normally bills at the end of each month, but suspends this practice the last two or three months of the year, Internal Revenue will probably question the change, because the taxpayer had the power to demand and receive payment before the end of the year.

Shifting Expenses

Another method of reducing taxes in a year of high receipts is to introduce expenses which normally would not be paid until the following year. Cash-basis farmers must actually pay such items; it will not do to sign a contract or give a note to the supplier. Cash or a check (preferably a check to better prove the expense) must be given. An individual low on funds can borrow from his bank to pay the bill, and can deduct the interest on the loan as another item of expense. Some expenses which can be shifted in this manner are seed, fertilizer, feed, and supplies — in quantities which would reasonably be required during the following year. An "advance deposit" paid for supplies to be delivered during the following year is not deductible, but it is safe to deduct payment for supplies delivered before the close of the year.

Artificial transactions to shift expenses are a waste of time and an invitation to trouble. Many farmers have tried to move feed expense into a high income year by giving an elevator a large check for "feed" near the end of the year and then having the elevator repurchase the "feed" early the following year. Internal Revenue will allow the expense to be deducted, but will demand that the farmer set up a grain "inventory" for this feed, ruling the commodity was bought for resale and not for farm use. This produces additional income in the same year in the amount of the inventory cost which washes out the so-called "expense."

A good rule to follow is: Don't take delivery on more feed than will meet the needs of livestock on hand or expected.

Payments for labor and machine hire, soil and water conservation, should be for work actually done before the end of the year. This expense must not exceed 25 per cent of the gross annual income from farming—the income not only from the farm on which the work is done, but from all farms operated or rented (on a crop rental basis) by the taxpayer. This "gross income from farming" also includes capital gain from the sale of breeding and dairy livestock.

Checks dated at the year-end can cause trouble. Ordinarily a check dated December 31 will be allowed as an expense for the current year. However, if the check is unusually large, or if a lot of checks are so dated, and if the obvious purpose was to shift expense into the current year, Internal Revenue will determine the date the check was actually received by the payee. If this date is far enough into the new year to disprove the taxpayer's claim that he mailed the check before the end of the year, the deduction will not be permitted for the preceding year. Moreover, if there was not enough money in the taxpayer's bank account to cover the check on December 31, the Revenue Agent will disallow the expense for that year on the grounds it was not a true "payment."

In contrast, to shift expenses out of the current year to increase abnormally low net income of the current year, payment of bills should naturally be postponed. Reluctant creditors are usually cooperative if they are given short-term notes, and interest on the notes is a deductible item.

Accrual-Basis Farmers

This income shifting has little application to accrual-basis farmers, whose inventories and accounts receivable are taken into account in determining their farm profit. However, expenses can be shifted into the current year by taking delivery on seed, fertilizer, feed and similar expense items not held for sale or used in marketing produce (for example, egg cartons, fruit baskets) and not includable in inventories. As with cash-basis farmers, they can have soil and water conservation work done before the end of the year—even though payment for this work is not made until the following year.

Depreciation Adjustments

Under the 1954 Internal Revenue Code taxpayers can use the declining balance method of depreciation (with double the straight-line rate) in the case of new or reconditioned equipment and buildings. Thus, a tractor with a normal straight-line rate of 10 per cent could be set up on a declining balance rate of 20 per cent. This enables taxpayers to recover two-thirds the cost in one-half the normal life of the asset. Although this can be of real value to the farmer, there are two pitfalls to guard against: (1) Using a double rate which is too high because it is based on a straight-line rate that is too high. For example, if you usually trade in your tractors after four years, you could legitimately use a four-year life for straight-line depreciation, provided a fairly high salvage or trade-in value is used. However, if you decide to put your new tractors on the declining balance method, you would *not* be allowed to use a 50 per cent rate (double the rate based on your four-year straight-line method). The regulations state the true "normal" life must be used as a basis in determining the double the straight-line rate. (2) The second pitfall is depreciating an asset below reasonable salvage value.

This second pitfall causes trouble. It is a stumbling block, not only for declining balance method taxpayers but for those using the straight-line method as well. Revenue agents take great care in searching farm depreciation schedules for instances where farm buildings and other improvements, breeding and dairy livestock, and equipment have been depreciated down to zero or thereabouts. Where it serves their purpose of collecting more tax, they will not allow such deductions because the law does not permit depreciation below a "reasonable salvage" value.

Depreciation taken on purchased breeding and dairy livestock is particularly vulnerable, because the deductions are allowable at 100 cents on the dollar, while any long-term capital gain from the sale of such animals is taxed at only 50 cents on the dollar. Internal Revenue agents know that depreciating such animals below a reasonable market value artificially increases long-term capital gain when they are sold and they will disallow the excessive depreciation.

To avoid this, it is best to establish a reasonable salvage value (using a higher value if the assets will be used for less than their normal life) for all breeding and dairy livestock listed on the depreciation schedule and for all buildings and equipment costing $1,000 or more. (Revenue

(*Continued on page* 129)

TAX TERMS

Here are a few common ones:

Cash basis means income is reported only when cash or checks are received and expenses are deducted only when cash or checks are given for them.

Accrual basis means income is reported not only when cash and checks are received, but when work is done or sales are made for which payment is due; and expenses are deducted not only for cash or checks given for them, but for debts owing for them.

Straight line means dividing the number of years of estimated life into the cost (less salvage or trade-in value) and taking an equal amount of depreciation for each year, breaking this down into months where the item is purchased during the year.

Declining balance means the percentage rate of depreciation is applied to the entire cost in arriving at the first year's depreciation (if the item is purchased during the year, then only a pro rata portion is taken); the second year's depreciation is computed by applying the percentage rate to the "declined balance," namely the cost minus the first year's depreciation; and so on.

SPEAK TO ME

A busy farmer may find the easiest way to be in three places at once is with a radio, an intercom or a telephone. The holler is almost out of date

THREE YEARS AGO, Jim Reiter flew jets. At 500 miles an hour, and 45,000 feet nearer to heaven than you and I, a shout is wasted breath. So they used radio. "Lockland tower, this is Zombie, two seven east, four five thousand, landing instructions." Zombie is Jim Reiter.

Today, Jim Reiter, dark, well-built and fast-moving, is a farmer in Milligan, Indiana. But he still uses radio to control his operation. "Tractor 487, this is Zombie. Going ten-seven to talk to some magazine writer." Ten-seven means "out of vehicle."

This is the way communication has come to a 1,000-acre farm in the Midwest. To the big ranchers of Arizona, Texas, California and the great wide-open, radio telephones, private radio and walkie-talkies are perhaps old hat. But Jim Reiter's communications network is not in the West where miles are mouse-steps, and the farmers wear seven-league boots. It is on a farm unusual for nothing except perhaps its efficiency—no fancy showplace.

Communications is a word which is growing to have a new meaning in farming. It is no longer the TV with the $64,000 question or the radio's syrupy voice selling wonder pills. Communications is the movement of messages to smooth the running of a farm organization. The telephone springs to mind at once. But this is no longer all—and the phone itself has had its changes. And some of them have farm application.

But radio, and intercom systems, phone extensions and private lines are innovations that can save more than a step or two. They save the dimes, and the dollars. Wisely placed, they soon pay for themselves.

The Reiter farm is in two blocks, roughly 600 and 400 acres each. There is an elevator on the larger plot of land, not far from the farmhouse. The base radio station is in the house, run by Mrs. Reiter. Two tractors and the pick-up have mobile stations. Driving the pick-up, Reiter is constantly on the air. He reports his position regularly to his wife, and discusses problems with foreman on one tractor, hand on another.

"When my father died in August, 1956," he said, "I was left the whole operation. Before, I had handled only the grain end of the farm. My father handled the livestock. After his death I just had to have a way of keeping up with the men." He tried a small radio, with about a two-mile range, but it proved unsatisfactory. On the fourth of February last year he signed a contract with Motorola for equipment, and on the fourth of May was on the air, licensed and lawful. Now it is even easier. On June 5, 1958, the Federal Communications Commission ruled that any bona fide business could be granted a license for radio. And the change is great. "After a week the whole farm operation was filled with new life," said Reiter.

"At first the men used the radio very little—they were unaccustomed to it. They even forgot to use it." Reiter smiled. "After a week, they called for every little thing. They even called to ask what time it was. But when the newness wore off they stopped that. After two months it was strictly for business —and has been ever since."

Reiter believes the radio saves him a three-bottom tractor and at least one man. "This morning I saved an hour by one call," he said, "and you would have waited to catch me if my wife hadn't radioed you were here." Reiter's 60-watt station with 30-watt mobiles has a normal 30-mile range, but with radio, freak receptions sometimes happen. Three nearby radios—a vet, a construction company, and a TV salesman—are on different frequencies, so give him no trouble. But two months to the day after installation, a long distance reception from Tuscola, Illinois, saved Reiter the cost of the radio and then some.

Skies were clear and blue over the farm, and Reiter was in the field. "I had 2,000 bushels of wheat, better than $4,000 worth, on wheels in the field, and my foreman was baling alfalfa," said Reiter. At noon, Mrs. Reiter overheard the Tuscola station, a chemical company, discussing a sudden torrential downpour moving east. Milligan is east of Tuscola. She told her husband, and he started moving the crops. "Most of

Communications is control. Perhaps it is a warning from boss to tractorman (above) that although the sun is shining, there is a storm nearing. Perhaps it is an everlistening ear, sitting quietly above two lambing ewes (opposite page) on the Marek farm, in Illinois. Or it may be a telephone extension in a turkey house, with a nearby squawk box tuned to tell when the birds are crowding (bottom right). The turkey on his arm isn't talking, but C. R. Fitch is, and the buzzer by his right hand brought him to the phone. Communications is convenience.

it was on wheels," said Reiter, "but we had to hurry. The sky darkened, and the rain came in a rush. We saved all the alfalfa but it hit one batch of wheat, the last wagon load. That load alone had to be dried. We saved $6,000 right there."

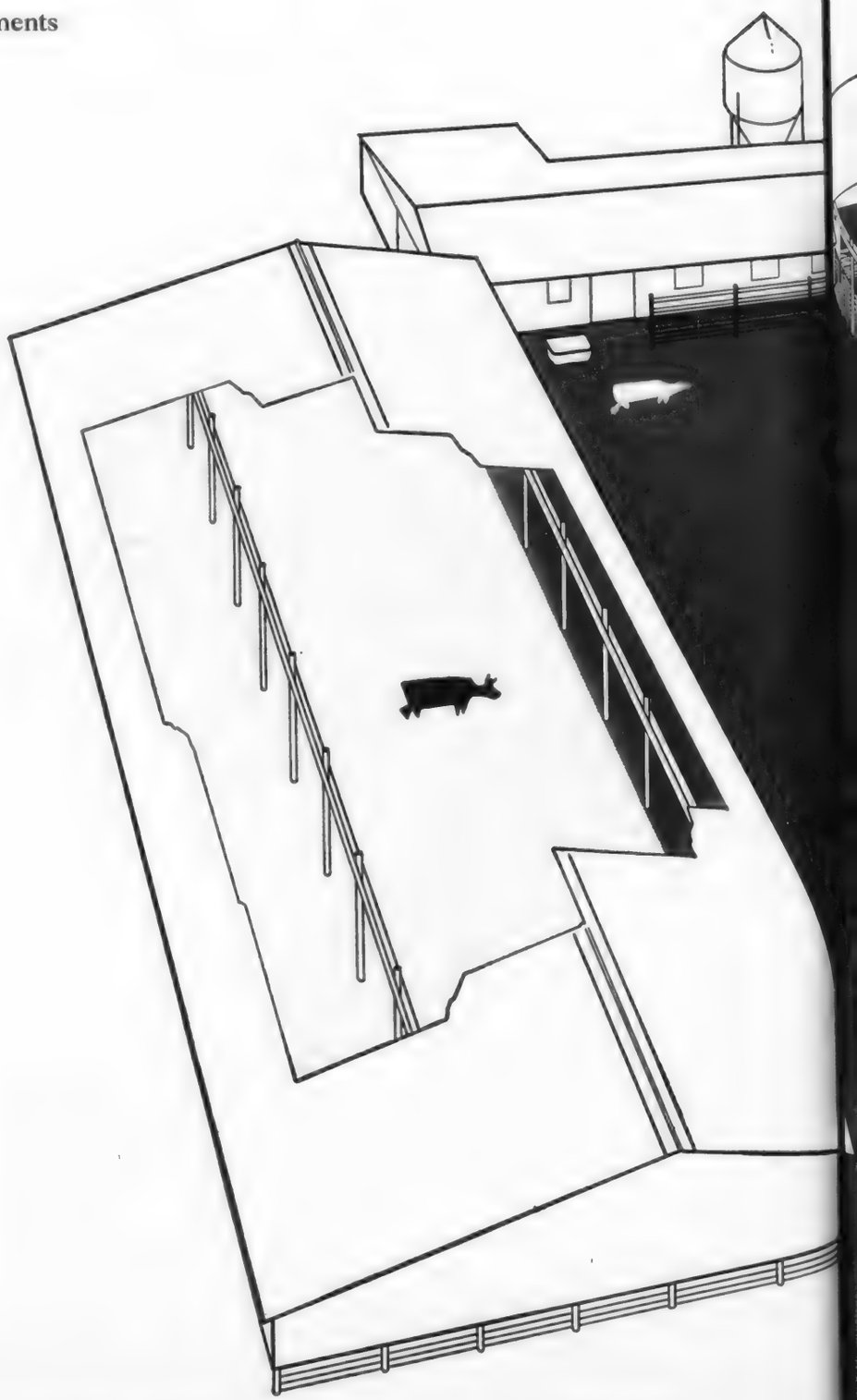
It hasn't all been plain sailing for Reiter. There have been snags to radio. One of his mobiles, a 10-watt unit, had a faulty tube, and couldn't be heard at the extremes of the farm. Also the radios put a strain on the six-volt batteries of tractors and pick-up. "Receiving is OK," said Reiter, "but transmitting takes about the same power as a starter motor. After a lot of talking we sometimes have trouble." The latest radios, with transistors instead of tubes, prevent some of this. Reiter's men took time to learn the use of radio. "When I first got the system, I had to repeat everything at least once, which slowed things down. When the men got used to the sort of thing they could expect to hear, things quickened a lot."

One of the best uses for the radio was coordinating the corn hauling on the Reiter farm. "We moved a mobile unit to the picker-sheller, put it in a mail box to keep out the dust and protect it, and set it up near the driver. He would call 20 minutes before he needed a truck, and one would go out to the field. The driver could get out of one truck into another—never a minute wasted." Reiter continued, "Without radio the trucks piled up at one end or the other and wasted plenty of time. Now I can do with one less truck and driver. Best of all is the speed after a breakdown. Last fall when part of the picker head broke, I was in town in the pick-up, right near a dealer. I brought the part

(*Continued on page* 88)

The New U-Barn

A simplified, functional design cuts building costs and permits the doubling of herd size with no additional labor requirements



When news of the 1849 California gold rush reached the quiet village of Wilster in Germany, Luther Engelbrecht, an adventurous farm boy, set out to seek his fortune. Because of Luther Engelbrecht's quest, there is a shining new U-shaped dairy layout on the farm of his grandson, Adolph, in the hills of Madison County, New York. The uprights of the U are gleaming, steel-clad, pole-frame buildings, a loafing barn on one side, a separate feeding area on the other. The base is the milking parlor and milk house.

Adolph Engelbrecht is a slender, graying, soft-spoken dairyman who moves about this layout with the lithe step of a cat. The barn, he tells visitors, is a direct result of his interest in his grandfather's romantic youth. And listening to Adolph tell the story is a delightful experience.

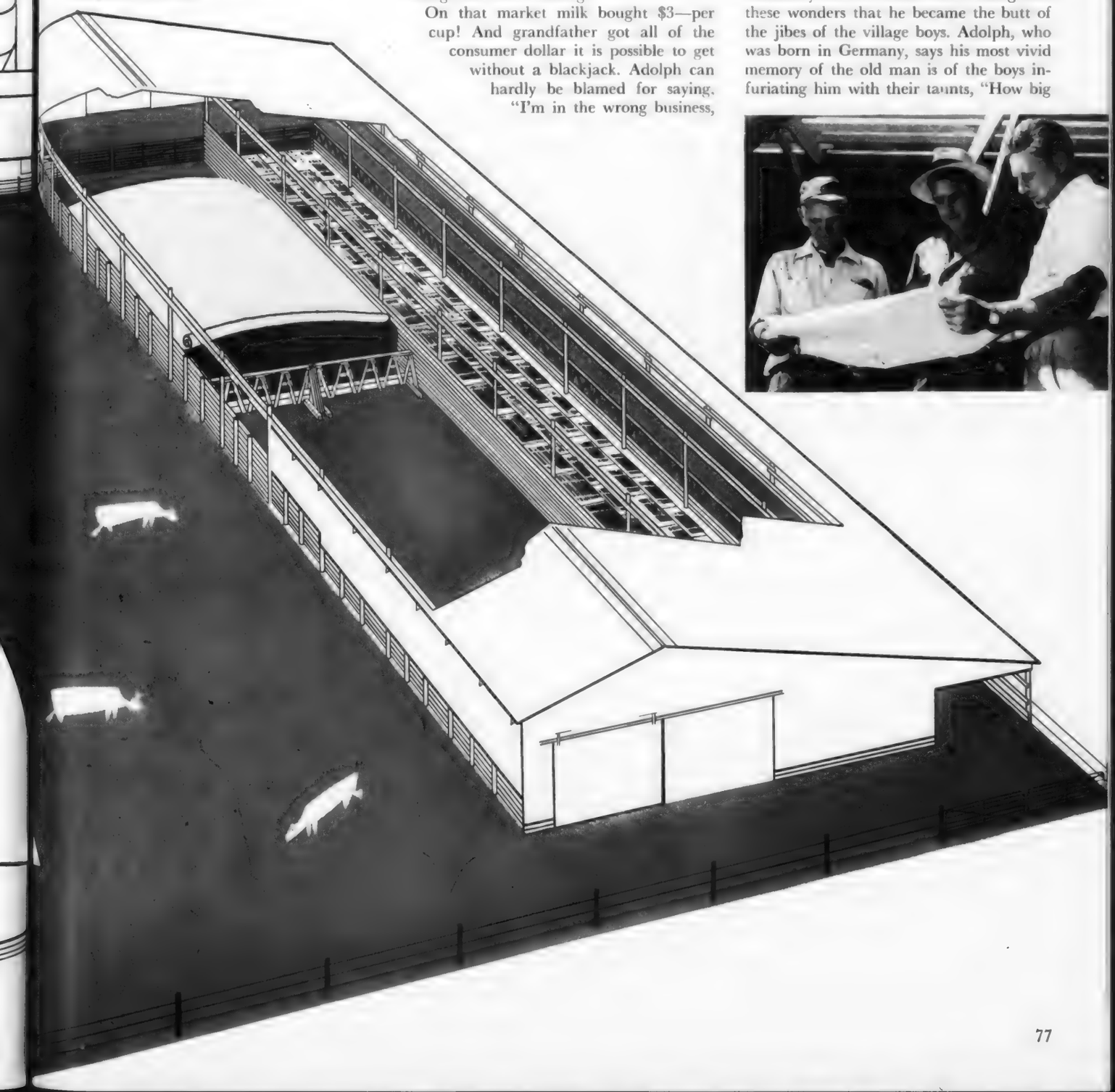
In sharp contrast to the careful precision of his farming methods, Adolph's language is as carefree as a summer calf and as unexpected as a rise in the price of milk. "The Soil Conversation people help me work with these hills," he said the other day. And he sometimes wonders what "that fellow Izaac Benton down in Washington is going to do about the surpluses."

But to get back to the barn. "If I hadn't tried to find out about Grandfather's place at Sutter's Mill, I wouldn't have seen those big dairies out in California," he said, "and if I had never seen them I wouldn't have been sold on loose housing and I wouldn't have had the nerve to build this —my neighbors would have laughed me out of it."

In the summer of 1950, Engelbrecht left his stanchion barn and 25-cow herd of Holsteins in the friendly hands of relatives and took off for the West Coast in an effort to piece together the story of grandfather's adventures. He came home with some good stories and a whole new concept of dairying as well.

Grandfather, it developed, had been a very smart individual indeed. He had let the more reckless types hunt for gold with pick, pan, and flume while he prepared to relieve them of the burden of a *kleine*

The Engelbrecht dairy unit consists of a loafing barn, to the left of the drawing, a covered bunker silo and hay-feeding area, on the right, and a herringbone milking parlor at the top, all centered around a wide, blacktopped court. At milking time the cows move up the alley on the right of the hay-feeding area, are held in the space at the upper part of the feeding barn. Adolph Engelbrecht (left) studies the plans with Larry Rogers, the builder, and Ivan Bigalow, of U. S. Steel, who designed the layout.



fraction of it. Specifically, he went into the dairy business; and he operated on a scale that makes him the envy of his grandson and any other dairyman who hears the story.

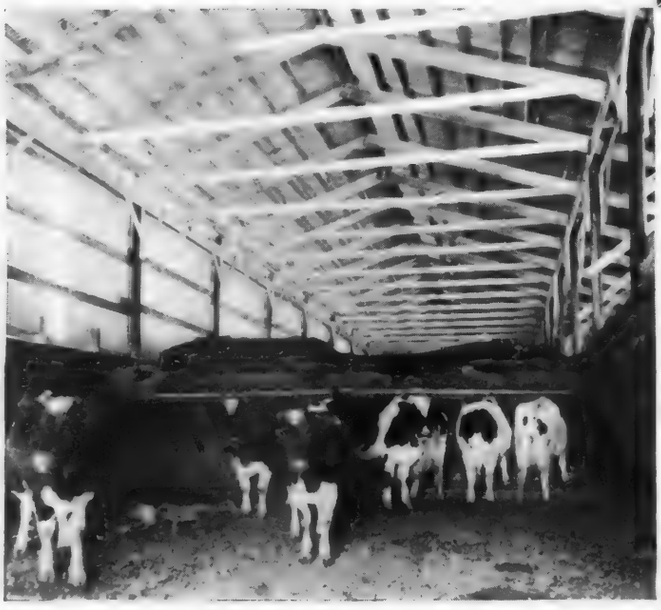
He bought cows from the Indians and Spaniards and established a self-service dairy. When the miners came for their milk they were assured of an absolutely fresh and undiluted product; for their's was the privilege—and the necessity—of doing their own milking.

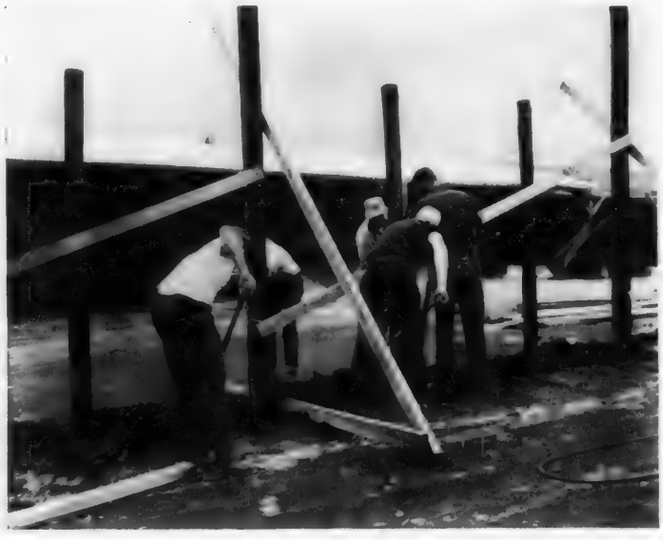
On that market milk bought $3—per cup! And grandfather got all of the consumer dollar it is possible to get without a blackjack. Adolph can hardly be blamed for saying, "I'm in the wrong business, at the wrong time and the wrong place."

After amassing a small fortune and surviving a variety of experiences with miners, loggers, Indians and frontiersmen of the calibre of his friend "Carson Kit," Grandfather Engelbrecht returned to Germany to seek a bride. But he never forgot the Golden West.

He never stopped telling tall tales of the great trees and the mountains and the fertile valleys of the land of the Sierras. So constantly did he dwell and enlarge on these wonders that he became the butt of the jibes of the village boys. Adolph, who was born in Germany, says his most vivid memory of the old man is of the boys infuriating him with their taunts, "How big

The workmen (left) are setting the plates on the feeding barn. They measure from the center of one pole to the center of the next to get the measurement of each plate. The end plate extends 2 inches beyond the outside of the corner pole. The post holes (lower right) should be 20 to 22 inches in diameter to give plenty of leeway for lining up and room for tamping. It is quicker to dig through blacktop than to pour the material around the poles after they have been set. The floor of the hay feeding area (right) is cleaned with a tractor scraper.





Silage is completely self-fed from the box silo (above). The diagonal 2 by 4 slats in the feeding gate keep the cows from wasting silage, while the weight of the cows on the platform helps to hold the gate in place while they eat. This floor, too, is of blacktop.

BUILDING A HORIZONTAL BOX SILO

The following table shows the size of the horizontal box silo needed for various-sized herds and feeding seasons when each animal is fed 8 pounds per day and silage weighs 50 pounds per cubic foot.

Herd Size No. of Mature Animals	Wall Height (Feet)	Average Width (Feet)	Silage Wt. Needed for One Month (Tons)	Silo Length Needed for One Month (Feet)	Pressure Creosoted Post Size: Without Guardrail Top Diam., Length	Pressure Creosoted Post Size: With Guardrail Top Diam., Length
25	6	12	30	16.5	5" x 10'	5" x 12'
35		16	42	17.4		
45		20	54	18.0		
50		24	60	16.5		
40	8	20	48	12.0	6" x 12'	5" x 14'
60		28	72	12.9		
80		32	96	15.0		
100		36	120	16.5		

Here are the materials required for each 4 feet of silo length, 8 feet high:

Width	Concrete (Cu. Yds.)	Welded Wire Fabric (Sq. Ft.)	Reinforcing Steel
12	1.4	60	2 pc. 3/8" x 8'
16	1.6	76	
20	1.8	92	
24	2.0	108	
30	2.3	132	
32	2.4	140	
36	2.6	156	

were those trees in California, old man?" Whereupon Grandfather would take after them with his cane.

Grandmother Engelbrecht, however, would have nothing to do with the strange land across the sea. So the old man never returned to America. Yet his dying request of Adolph's father was, "Take the boys to California." That was in 1910 when Adolph was only four.

Adolph's father set out to obey the injunction, but the family got no farther west than Iowa where relatives had located some time earlier. After a short time, they found their way to Wisconsin. Then, in 1918, they found the 170-acre New York farm which has been the Engelbrecht homestead ever since. It was owned by another German Lutheran who was having a hard time weathering the feelings of the war period. The problem of a down payment was almost overwhelming until the seller noticed a picture among the Engelbrecht possessions of Mother Engelbrecht's brother, a Lutheran minister. He accepted the picture as the down payment, knowing that family honor made it the safest sort of bond.

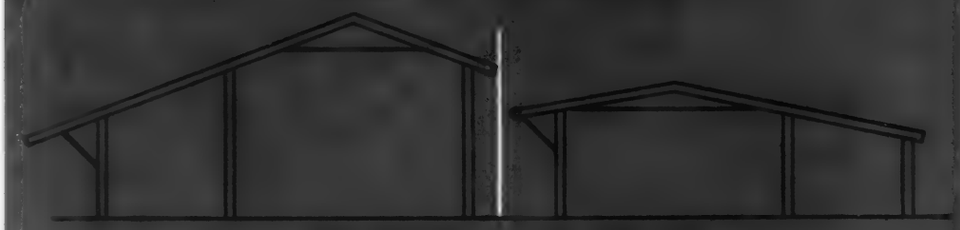
The family dug in with a will and a tremendous amount of hard work and in the course of the years were eventually in a position to put a match to the mortgage.

After the death of his father, Adolph took over the operation of the farm; but aside from substituting horsepower for horses he made few basic changes at first. The California trip convinced him, though, that loose housing was the only way to handle cows. When he came home he tore out the stanchions in his old barn, put in a milking parlor, and increased the size of his herd by 15 cows—about all a man could do while harnessed to a big, cumbersome, 19th century barn.

(*Continued on page* 109)

Besides the materials indicated in the box, the following are also needed:
2 pressure-creosoted posts for each 4' of length plus 2 posts for each end; concrete and reinforcing for 10" apron at front; 2" x 4" form lumber for concrete; tie wire for reinforcing; 1" x 4" lumber for temporary bracing of posts; material for feeding gate, if desired; plastic sheets or other material for covering silage. All side wall planking must be tongue and-groove and, if possible, end matched.

BILL OF MATERIALS



POLE FEEDER BARN **POLE LOAFING BARN**

PRESSURE-CREOSOTED POLES AND LUMBER

24 Poles	25' long	5" top diameter	11 Poles	14' long	5" top diameter
12 Poles	20' long	5" top diameter	22 Poles	18' long	5" top diameter
12 Poles	18' long	5" top diameter	2 Poles	22' long	5" top diameter
46 Poles	12' long	5" top diameter	18 Posts	8' long	4" top diameter
2 Poles	30' long	5" top diameter	64 Planks	2" x 10" x 14'	Nailed inside poles
360 Planks	2" x 6" x 14'				

LUMBER

60 Plates	2" x 10" x 14'		66 Plates	2" x 10" x 14'	
8 Plates	2" x 10" x 16'		42 Rafters	2" x 10" x 16'	
96 Rafters	2" x 10" x 16'		21 Rafters [1]	2" x 10" x 20'	
23 Rafter ties	2" x 6" x 22'		19 Rafter ties	2" x 6" x 22'	
300 Roof purlins	2" x 4" x 14'		300 Roof purlins	2" x 4" x 14'	
35 Roof purlins	2" x 4" x 16'		40 Nailing girts	2" x 6" x 14'	
80 Nailing girts	2" x 6" x 14'		20 Braces [2]	2" x 4" x 12'	
60 Braces	2" x 4" x 12'		16 Closure strips [3]	2" x 10" x 14'	

NAILS

20d Ring shanked
40d Ring shanked
2½" Ring shanked or screw shanked roofing nails
(Lead head or neoprene washer)

GALVANIZED STEEL ROOFING AND SIDING

150 Sheets	8' long	Short slope	335 Sheets	10' long	Roof—long and short slopes
150 Sheets	10' long	Long slope	60 Sheets	8' long	Back wall
150 Sheets	12' long	Long slope	40 Sheets	20' long	End walls
75 Sheets	10' long	Wall above silo	1 Ridge roll	150' long	
40 Sheets	12' long	End wall (doors)			
28 Sheets	10' long	End peak			
30 Sheets	8' long	End wall			
1 Ridge roll	150' long				

If a longer or shorter building is desired add or subtract these materials for each 13 feet:

PRESSURE-CREOSOTED POLES AND LUMBER

2 Poles	25' long	5" top diameter	2 Poles	18' long,	4-5" top diameter
1 Pole	20' long	5" top diameter	1 Pole	14' long	4-5" top diameter
1 Pole	18' long	5" top diameter	1 Post	8' long	4-5" top diameter
4 Poles	12' long	5" top diameter	4 Planks	2" x 10" x 14'	
36 Planks	2" x 6" x 14'				

LUMBER

8 Plates	2" x 10" x 14'		6 Plates	2" x 10" x 14'	
8 Rafters	2" x 10" x 16'		4 Rafters	2" x 10" x 16'	
2 Rafter ties	2" x 6" x 22'		2 Rafters	2" x 10" x 20'	
35 Roof purlins	2" x 4" x 14'		22 Roof purlins	2" x 4" x 14'	
4 Nailing girts	2" x 6" x 14'		2 Nailing girts	2" x 6" x 14'	
6 Braces	2" x 4" x 12'		2 Braces	2" x 4" x 12'	
			1 Closure plank	2" x 10" x 14'	

GALVANIZED STEEL ROOFING AND SIDING

13 Sheets	8' long	Short slope	33 Sheets	10' long
13 Sheets	10' long	Long slope	7 Sheets	8' long
13 Sheets	12' long	Long slope	Ridge roll	13' long
6½ Sheets	10' long	Sidewall above silo		
Ridge roll	13'			

1. Extends 4' over plate at upon side of barn. 2. Cut in 3' and 4' lengths. 3. Cut to fit between poles.

Galvanized steel, aluminum, or the new aluminized steel (aluminum-coated steel sheets) can be used for the roof and sides. Prices vary from one area to another, however, to give a relative comparison of the price of these materials, in a locality where .024 gauge aluminum sheets cost $24 per square (100 sq. ft.), an acceptable gauge in galvanized steel would cost about $12.50 per square, aluminized steel about $18.75.

These prices do not tell the whole story, though. Contractors generally charge more to work with the heavier steel sheets and maintenance on the galvanized material runs higher than on the aluminum.

Sheets of corrugated plastic, fiber glass inserted in the sides or roof of the building are fine for providing light. This material runs from about 85 cents to $1.10 per square foot.

Hard-Headed FACTS Dictate All Common Sense Behlen Designs

SPECIAL REPORT

How to Put More Money in Your Pocket at Harvest Time

by ALEX DREIER & LLOYD BURLINGHAM

(Narrators of Common Sense Ideas on NBC Radio's Saturday Morning Monitor Program, "This Farming Business")

In years of farm newscasting, we've seen few truly superior products. Products, that is, that have all the hard-headed, Common Sense features found in Behlen Designs.

Here are the facts, as we investigated and found:

FACTS **GRAIN DRYER**

- The Behlen Batch-Type Grain Dryer will dry your grain as fast as any 2-row picker can pick it.
- The Behlen removes 623 gals. of water from a 500-bu. batch of 30% moisture corn in 2½ hours. That's 4.1 gallons every minute . . . *That's drying!*
- Behlen's powerful Axial-Vane Fan forces 78 cubic feet of this heat-charged, drying air (H/A Power) through every bushel *every minute.*
- Your Behlen can last you 10 times longer; because Behlen engineering moves the air . . . not the grain. This means your Behlen grain-moving equipment is in gear only 1/10th the time.
- Behlen Dryers (with 4 new improvements) are available in 250, 375, and 500-bushel capacities. They will all operate off your tractor's PTO or electricity or gasoline or L-P gas.

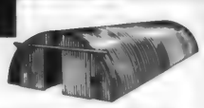
FACTS **CORN CRIB**

- The Behlen Corn Crib—with exclusive "Steep Pitch" roof design—gives you full use of otherwise wasted (but "paid-for-in-full") crib space above the eaves. This is because Behlen's Common Sense design follows the natural pitch of free-flowing grain.
- Extra-wide crib door lets you get your tractor's front-end unloader into the doorway for quick, easy unloading.
- All Behlen Corn Cribs are galvanized with a heavy zinc coating . . . *after welding.* There are no exposed weld spots where rust can start.
- Behlen All-Metal Steel Mesh Corn Cribs are available in sizes ranging from 611 to 1,940 bushels.
- And, Behlen Tunnels and Vents provide greater air circulation . . . safer grain storage. (Available in 10", 16" and 31" diameters.)

FACTS **GRAIN BINS**

Exclusive "Steep Pitch" roof design is now used on all deep-corrugated Behlen Grain Bins. Non-aging rubber gaskets seal vermin and weather out . . . seal grain in. Exclusive double-seal door withstands pressure with no need for cross-ties, rods, or bars. Available in 950 to 3,590-bushel capacities.

FACTS **CURVET BUILDING**



New Frameless Metal Building—the Behlen Curvet—has unlimited farm uses. This low-cost building can be enlarged at any time by adding new panel sections. Self-framing 3-inch deep channel ridge panels form sturdy, rigid frame arches. Delivered in 40-foot widths . . . length unlimited.

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Behlen **MANUFACTURING COMPANY**

Dept. F-9 Columbus, Nebraska

C. M. RUSSELL

(*Continued from page* 55)

Cattlemen still hadn't started to put up hay to winter their stock. They relied instead on the cattle's ability to rough it. And most winters the cattle came through in pretty good shape. But not, as old-timers would tell you, in the terrible winter of 1886-87. But that winter brought Charlie his first recognition as an artist.

He was working on the OH Ranch. There were heavy rains which later froze and encased the vegetation in ice. These followed snow two feet thick and it covered the ground for two months. Cattle starved all over the West. Some ranchers lost 90 per cent of their stock and many went out of business. Wolves fattened on the carcasses and cattlemen were helpless.

From Helena, Louis Kaufman, one of the big cattle operators of the day, wrote to ask Charlie's boss about the condition of the cattle. Charlie drew a picture of a half-frozen, emaciated cow surrounded by wolves, titled it "Waiting For A Chinook," and sent it to Kaufman as an answer. "Waiting For A Chinook," a post-card-sized water-color, soon became a famous painting throughout the cattle country. It was published several times and the cowboy artist's work began to take on a slight commercial value.

Drawn by the lure of full-time painting, Charlie gave up range life in 1892. He moved to Great Falls, and four years later married Nancy Cooper, a Kentucky girl. Nancy shortly proved she could handle Charlie's business arrangements, a field where Charlie was short of talent.

If Charlie thought a painting should bring $100, Nancy might casually announce that the price was $500—and more likely than not she'd get her price. "Why she's chargin' dead man's prices," Charlie told his friends.

Nancy said there would be no more Charlie Russell paintings given away over the bar—or anyplace else for that matter. There was a day when a visitor came to his little log studio to bargain for one of his paintings only to find that Nancy had decided they should be valued now in four figures. Charlie was speechless when she closed the deal for $1500. Down at the saloon later in the day, he said quietly, "Boys, my wife's turned road agent. She sure held a man up today.

"She's the business end," Charlie added, "and I jes' paint. She lives for tomorrow and I live for yesterday."

Gradually Charlie Russell's reputation as the "cowboy artist" spread outside the west and, as it did, the demand for his work continued to grow. Magazine editors kept him busy illustrating when he was not working on other commissions.

He listened occasionally to Nancy telling buyers of the value of his work. Her faith in him plus her business ability prompted him to spend more time on each canvas and he began turning out only 10 or 12 large paintings a year.

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Reynolds Aluminum Acceptance Corporation offers an equipment purchase plan that can be tailored to your own planting and harvesting schedules. Your down payment is just 25%. Payments run up to 48 months, in amounts suited to your individual needs. There is no collateral involved other than the irrigation system itself.

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The plan covers all the equipment for portable irrigation: pump, aluminum pipe, couplers and sprinkler heads. This plan, available only through your Reynolds Aluminum Irrigation Pipe Distributor, was set up to supplement local facilities, and to provide a simplified means of permitting the "on time" purchase of a complete portable irrigation system.

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I would feed_____head of livestock.
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TOWN_____STATE_____
☐ Farmer ☐ Dealer ☐ Student

Charlie Russell, at home on the range, was lost in the big cities and he realized it fully every time they'd make a trip to New York, which he called the "Big Camp." Every time he went out by himself he'd get lost, just as he did on the afternoon he went out to the tobacco store. He couldn't recall the name of his hotel or the street it was on. He did recall that the awning above the door had a small hole in it. He wandered on one street after the other until he found the right awning. Nancy then sewed the name and address of a New York friend in all of Charlie's coats.

Charlie Russell had no conviction that his art was great or would become great. He did know it was an accurate picturing of the old West when he was part of it. It was enough for him to paint it. If a client said one of his paintings was overpriced he would as likely as not agree. He was sitting, one afternoon, beside one of his paintings hanging in the Grand Central Galleries in New York when a fashionably dressed lady came in, studied the painting carefully and asked the girl in charge the price.

"Six thousand dollars," the girl said.

"It's not worth it," the lady said, as she turned and left.

Charlie went over and studied the painting inch by inch. "By Gad," he said, "she is right. It's not worth it."

Neither Charlie nor the lady was right. The painting recently sold for over ten times that price to an Oklahoma oilman.

GRUB RUB OUT/an inside job

(*Continued from page* 64)

practically eradicate the fly. If no larvae mature there are no adults next year, and the adult fly does not move far in a lifetime. Perhaps half a mile. So, it would seem the grub could be controlled on the whole of the North American continent if every farmer would treat.

The benefit would be staggering. J.C. Rosse, regional manager of Livestock Conservation, Inc., Omaha, Nebraska, estimates annual hide and carcass losses in the United States at $13,000,000 to $15,000,000. And he adds the Tanners Bureau estimate their losses at $32,000,000 after they get the hides. These are the sort of figures that have made reliable estimates of the annual waste from cattle grub range from 100 million to 300 million dollars.

By no means all of this loss falls on the cattleman alone. Much is borne by the processor and specialist. But today's farmer must be a far-seeing man. "We farmers have got to become quality conscious—not only of the main commodity—but also of the by-products," said Bob Carter. "There have been times when a slaughterer was very happy to make his kill for the value of the hide, and Trolene

GREATEST DEVELOPMENT in SPRINKLER IRRIGATION

SEALS OUT SAND

RAIN BIRD SPRINKLER with TNT Bearing

Here's the greatest development in sprinkler irrigation since Rain Bird introduced the spring operated, swinging, spoon-type arm that revolutionized sprinkler irrigation.

Rain Bird No. 30-TNT sprinkler bearing has a self-adjusting spring-loaded Teflon seal at the top and Teflon and Neoprene seal at the bottom, neither of which can be blasted loose by air or water-borne abrasives.

The new TNT bearing assures less friction and for you that means longer, pleasanter sprinkler life... pleasanter, because a minimum of moving parts practically eliminates maintenance and offers the longest, trouble-free sprinkler operation you've ever known.

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FARMHAND offers the newest and best in power feeding equipment!

Big-tonnage feeding handled faster and easier with the new "420" FEEDER

THIS BIG 420 CUBIC FOOT CAPACITY mixer-feeder is the newest addition to the Farmhand line. It's built to last, with one-piece sheet steel sides and welded steel channel braces, ¾" marine plywood floor. Three rugged 18" diam. beaters assure thorough mixing of any rations. 24" 3-ply conveyor belt gives you smooth, dependable unloading in 1 to 4 minutes. Optional extension elevator is available.

THE "420" FEEDER mounts on truck or heavy duty running gear for left front discharge. It will speed up and simplify your tough forage handling, feeding and silo filling jobs. You get top performance at the lowest possible cost.

New Farmhand "SILA-VATOR"

the modern, low cost answer to silage digging and loading problems

HERE'S THE FASTEST, LEAST EXPENSIVE METHOD of getting silage out of trench, bunker and pit silos. It's the all-new "Sila-Vator", hydraulically-powered, delivers up to ¾ ton per minute, and fits all low-profile tractors. It cuts straight and even to reduce spoilage; fluffs silage for better mixing and palatability. 20 foot cutting height, 14½-foot discharge height, powered entirely from P.T.O. Doubles as an all-purpose elevator.

6-TON "POWER-BOX" FEEDER

SAVE UP TO 50% in feeding costs. This Farmhand 6-Ton "Power-Box" Feeder handles big 300 bu. loads of green feed, corn silage, dry feeds. Ration is thoroughly mixed and unloaded into bunks as you drive along. Fast one-man feeding. Also available in 4-ton size.

16" AUGER DISCHARGE type shown. Feeder mounts for front or rear discharge on truck, tandem trailer or wagon.

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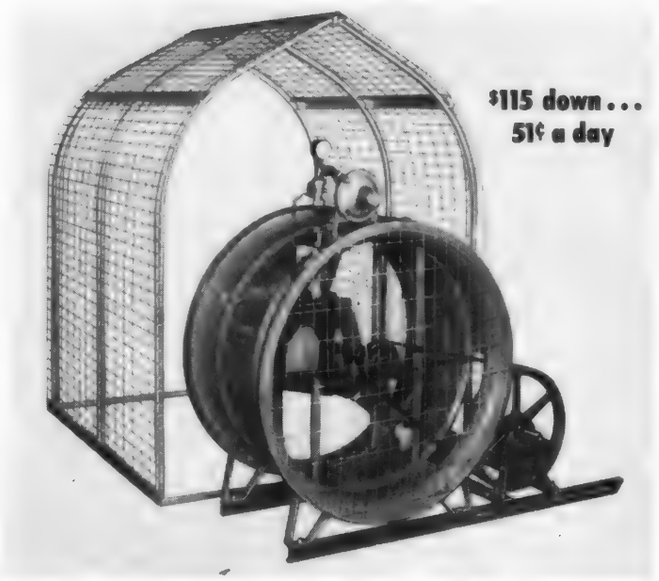

36" CLAY Crop Drier is economical size for most farms. It may be used for corn, grain, hay.

How you can plan for low cost all-crop drying

If you are like thousands of other farmers who are looking for extra income, you'll likely buy a crop drier this year or next. If it looks as though there's a chance your corn will be high in moisture this fall, you'll probably buy within the next few weeks.

Here are some tips that will help you choose the drier that will do the job at lowest possible cost.

Dry Both Corn and Hay

You'll save money if you can get *full use* from your drier. This means it's important to pick one that can dry hay as well as grain.

Right now, you are probably concerned about your corn. An inexpensive CLAY Drier with heating unit can bring your corn from 35% down to a safe 13% moisture. *That means driving over 15 lbs. of water out of each bushel.*

Oats, wheat, grain sorghum, soybeans, rice, and other crops can also be harvested at 20-25% moisture and dried down to safe storage levels.

But you save the most money if you can use this same drier for hay. Your CLAY Crop Drier, for example, often pays for itself the first season simply by saving up to 90% of the protein otherwise lost in field curing. It does this without use of heat and for a power cost on only 50¢ to 90¢ per ton.

When you can save protein at such a low cost, it's just like someone paying half your feed bill!

Set Up in Field or Barn

Mounted on skids, a CLAY Drier can quickly and easily be moved from one location to another. If not accessible to electricity, it may be driven by tractor PTO.

Low Initial Cost

Because of the simple design and CLAY's large volume production, initial cost of the CLAY Crop Drier is substantially less than that of any other high quality drier on the market.

Another important suggestion: When choosing a drier, be sure you give consideration to the various jobs you wish it to perform. CLAY makes fans of any size from 1 HP to 15 HP . . . there is a CLAY fan for any drying problem you may have. Your local CLAY Dealer will be happy to give you recommendations as to the size and the type of fan to buy. The 36", 5 HP model shown above will handle most drying jobs.

Invest Only 20% This Fall

You needn't wait. With the CLAY Purchase Plan you only invest 20% now and have up to three years to pay balance. Your drier will have paid for itself long before that. *You can own a CLAY All-Purpose Crop Drier for 51¢ per day.*

For More Tips . . .

Your CLAY Dealer can give you other suggestions for low cost crop drying and full details about the Purchase Plan. See him next time you're in town . . . or mail coupon to CLAY . . . *today!*

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☐ Corn & Grain Drying ☐ Moisture Tester

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can double the value of a hide." Carter owns the 5,100-acre Cornwell Ranch in Clare, Michigan, a feeder calf operation that ships in 6,000 cattle a year from all over the United States, acclimatizes them, groups them, and sells them to farmers all over Michigan. Carter has used the Trolene bolus for two years on groups of test cattle and is happy with the results. "In time it is going to be a necessity for the livestock man," he said. "What impressed me was the destruction of these parasites right in the animal's body. When we brought treated animals back to the ranch, they made wonderful gains. Even on pasture, we felt the treated animals did a better job of gaining for us."

A tall, bespectacled man, Carter is enthusiastic about the control of grubs. "Our treated animals had backs just as smooth as silk," he said, "and yet I saw a farm near here where the grubs were so bad the starlings were sitting on the critters' backs and picking at the warbles.

"When we told our farmer-customers about the control and its advantages," Carter went on, "they wanted to buy treated feeders. But some couldn't see treating for the grub before they could see it." He laughed. "It's like taking an aspirin when you don't have a headache.

"We would like to extend our testing and treat all our cattle," Carter said. "We might do it as a service, charging one or two dollars a head, when it's accepted. Meanwhile we would be happy to treat them to encourage other people in the practice. Our problem is getting them at the right time of year for treatment."

Carter marked his treated animals with a dated eartag. "These are going to be the thing," he said, holding a tag. "The packers are going to start looking for them, and if they're not there, they are going to start asking questions."

There can be side effects from the administration of the bolus or the spray. Dr. Earle Raun, Iowa's extension entomologist, discussed the setbacks that can follow treatment. "The first, and most likely symptom is that the animal doesn't eat as much as it should for a short period. Cattle on full feed—a high protein, high corn ration—are most likely to show signs of off-feed. But remember," Dr. Raun emphasized, "these cattle would be the most likely to go off feed after excess handling of any kind."

He stressed this need not occur. "In most cases signs of the dose are so slight few farmers would notice them." Very occasionally there are severe reactions. But these are rare, according to Dr. Raun. "Of 10,000 head treated in Iowa, so far as we know, only four had any reaction more serious than off feed for a day or so." Two of the four went down with a major paralysis. They were slaughtered and an autopsy revealed they had a blood clot in the spinal canal. Dr. Raun blames rough handling. They were among a group that had been shipped over 100 miles by truck, and soon afterwards were dehorned, castrated and treated for grub all at once. These animals were aching at both ends and in the middle. But they illustrate rule number one. *Never treat an animal that is sick, or has recently been subject to stress, such as travel, castrating, dehorning, or other injections.*

The other two animals that Raun mentioned were extremely off feed, grunting and groaning, staggering as if drunk, and salivating excessively. However, both recovered after being given free access to water, with no other treatment. They had been treated by a youngster, whose farm project they were, and he had gone back to school without watering them. They had no water for six hours after the dose. They are the examples for rule number two. *Treated animals must have plenty of water available.* Dr. Raun said, "The place where we have most commonly seen the beginnings of toxic reactions is where animals haven't had a sufficient supply of water. Plenty of water is a must."

Although it had not been a problem in Iowa, Dr. Raun said some areas had trouble treating calves within six weeks after weaning. It did not seem to matter what the weaning age had been. This was perhaps due to the stress of this time of a calf's life.

Dr. Robert G. Howe, field specialist in agricultural chemistry for the Dow Company, mentioned some other causes of reaction. "It is possible," he said, "to hurt the cow's throat with the balling gun. With an injured esophagus, the animal might have difficulty eating. There have been losses due to that." A well-designed

WYETH ANIMAL HEALTH TOPICS

Fall Weather Brings Increase In Cattle Diseases

With unpredictable fall weather ahead, cattle are more prone to infectious diseases—particularly *calf pneumonia, navel ill, and shipping fever.* If you are prepared to treat your stock immediately, most diseases can be controlled before they reach a serious condition.

INJECTION BICILLIN® FORTIFIED

(Benzathine penicillin G and procaine penicillin G, Wyeth

with a *single shot* provides both the prevention and the treatment of infectious diseases. High penicillin blood levels are rapidly produced in the animal to fight the infection fast. Sustained, effective levels, lasting as long as five days, protect the animal against relapse, recurrence, or reinfection.

INJECTION BICILLIN FORTIFIED is also widely used to protect livestock against foot rot, actinomycosis (lumpy jaw), calf diphtheria and other infectious diseases.

For the protection of your animals, always keep an ample supply of INJECTION BICILLIN FORTIFIED ready and waiting. Available: 300,000 units per cc. in vials of 10 and 50 cc.; 600,000 units per cc. in 1-cc. TUBEX® sterile-needle unit; and in 4-cc. disposable syringes of 2,400,000 units each.

BICILLIN® POULTRY FORMULA (Dry)

Benzathine penicillin G, Wyeth

STOPS BLUECOMB (MUD FEVER), C.R.D.

The longer it takes to get poultry well, the longer your returns are in danger. BICILLIN POULTRY FORMULA (Dry) provides a powerful, effective treatment—*2 to 3 days faster than any other method*—to stop poultry losses due to bluecomb (mud fever) and the complicating factors of chronic respiratory disease.

You cannot afford to be without BICILLIN POULTRY FORMULA (Dry), especially with the heavier broiler season just ahead. It comes in protective aluminum-foil envelopes, 25,000,000 units of *dry* Bicillin per envelope. Just add contents to drinking water.

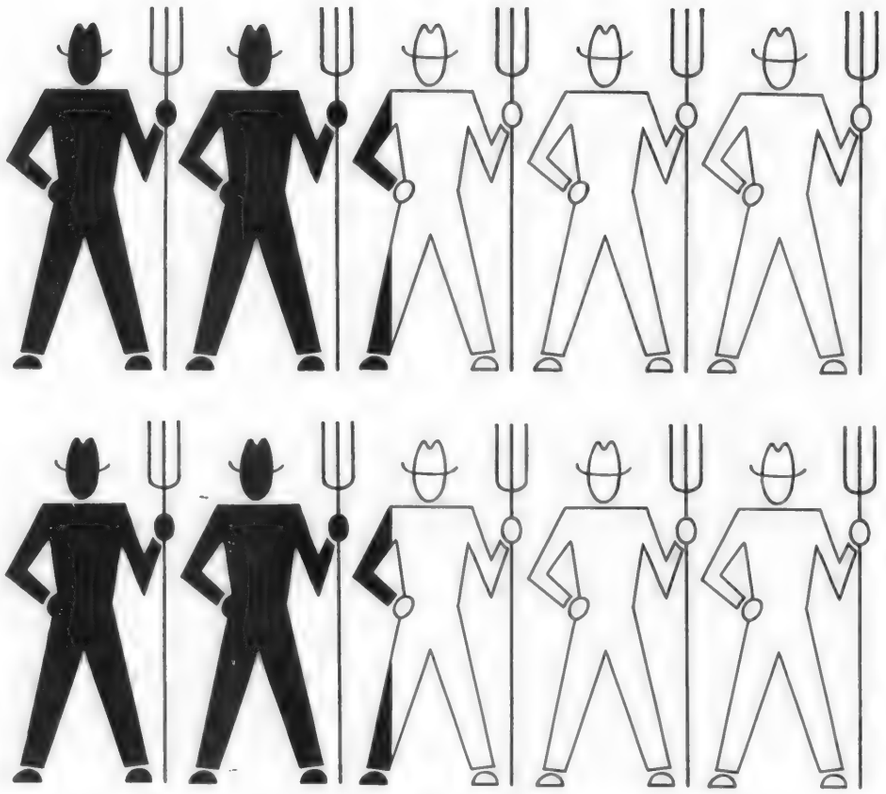
BEAT CALF SCOURS

If you are prepared at the first signs of calf scours, over half of your battle against the disease is won. **BOLUS KAO-STREP®** with Vitamin A on hand today may make all the difference in the world tomorrow.

BOLUS KAO-STREP with Vitamin A is scientifically formulated, prophylactically and therapeutically, to combat scours. BOLUS KAO-STREP kills the scours bacteria; pectin and alumina soothes and protects the irritated intestinal walls; and guards the animal against reinfection and promotes a natural resistance to the disease.

Be prepared. Get BOLUS KAO-STREP with Vitamin A *now*. Available in packages of 2 (single treatment) or 10 boluses (multiple dose).

To Keep Animals Healthy *Economically*
RELY ON *WYETH* ANIMAL HEALTH PRODUCTS



Are you among the 44% using plastic pipe for farm water systems?

A recent survey by a leading national farm magazine shows that 44% of all American farms and ranches now use low-cost, easy-to-install plastic pipe in their water systems.

If you don't happen to be among that 44%, we'd like to introduce you to USS National Polyethylene Pipe NSF Grade. Lightweight but rugged, it's ideal for irrigation, sprinkler and stock watering systems—or for any other farm use where you are transporting water at temperatures from —90°F. to +120°F.

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National Polyethylene Pipe NSF Grade comes in lengths up to 400′, in diameters from ½″ to 6″. It's made of 100% virgin polyethylene plastic, with 3% of an inert black pigment filler added to prevent deterioration from ultraviolet rays. Insert fittings in nylon and styrene copolymers (NSF) are now available from National Tube. Get them from your National Polyethylene Pipe Distributor.

Complete information on the varied uses of USS National Polyethylene Pipe can be yours by writing to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa. Specify Bulletin No. 29.

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balling gun, with rounded end cup, helps prevent such injury. And a competent and careful operator is essential, said Dr. Howe. He added that the use of a lubricant for the bolus helps the animal to swallow. White mineral oil, petroleum jelly, or an edible household fat is recommended.

One bolus is used for every 300 pounds weight of animal. A big steer may need three. The pills break in half for more accurate doses to intermediate weights.

One last instance of side effects, an unusual one, only occurs when the cattle are treated late—and when they are infested with one particular cattle grub — the Northern Grub. This grub spends some of its larval life in the spinal column, where the main nerve center of the animal runs. The effect is called anaphyllactic shock, believed to be caused by reaction of the animal to the proteins released when the grub dies inside the body. To support this claim, Dr. Howe points out when cattle were injected with ground-up grubs, the same symptoms occurred. Also if cattle are treated with Trolene twice, there is no shock the second time, when there are no grubs left. Other chemicals which kill the grub have been shown to give similar results. For these reasons, the company recommends early treatment, while the grub is deep inside the animal. This is particularly important in the northern half of the United States and in Canada, where the Northern Cattle Grub is found. Dow suggests no treatment after November 1st.

In contrast, Dr. Raun in Iowa is recommending treatment at any time in his state, since no trouble from anaphyllactic shock has occurred there.

Claims that the bolus is 75 to 95 per cent effective have been substantiated in many tests. Occasional grubs do occur in treated animals, but very few. This percentage includes animals that cough up the bolus, which can happen with poor insertion, said Dr. Howe. "Some spit-ups are bound to happen," he said, "but I have seen 650 done without a loss."

How the systemics control grubs is not known. The chemical itself may not be the killer. One experimenter took live cattle grubs from a steer and bathed them in Trolene for 48 hours without killing them. "It may be chemical changes within the animal make it deadly to the grub," said Dr. Howe. Also, it is not known that the increase in gains are due to control of the grub. "Trolene undoubtedly kills other internal parasites," said Dr. Howe, "perhaps these were the limiting factors."

The new grub warfare is almost a change in psychology for the farmer. Not only must he hit at the grub before it is visible, but he hits before most of the damage has been done. In the past the warble had spent five costly months inside cattle, punctured the hide, and damaged the loin meat before the farmer killed him, mainly to protect against arrival of the mature, egg-laying adult. Now the farmer can protect himself from the

ANNOUNCING

Co-Ral*

25% WETTABLE POWDER

LIVESTOCK INSECTICIDE

THE DRAMATIC DISCOVERY THAT KILLS CATTLE GRUBS SIMPLY BY SPRAYING!

A new and remarkably effective insecticide for the control of cattle grubs and other cattle insects has been registered by the U. S. Department of Agriculture for use on beef cattle, horses, sheep, goats and swine. It is called "Co-Ral" and is available for immediate use by the livestock industry.

Under intensive field testing for the past four years as "Bayer 21/199," Co-Ral has demonstrated an exceptional ability to control cattle grubs, screw-worms, hornflies, lice and ticks.

Co-Ral is of particular importance to cattlemen seeking an effective and practical way to control grubs because:

1 **CO-RAL is applied as a spray. It is a fast and easy method of grub treatment, requiring minimum handling and labor.**

2 **CO-RAL kills cattle grubs inside the animal—but before they are able to damage meat or hide.**

3 **Only one or two CO-RAL treatments per year are required if the cattle are sprayed soon after heel fly activity terminates.**

4 **When used for grub control, CO-RAL also automatically provides effective and extended control of screw-worms, hornflies, ticks and lice. Used as a specific treatment for screw-worms, CO-RAL protects animals from infestation 10 to 20 days—long enough for most injuries to heal completely.**

Now available through Dealers in Agricultural Chemicals!

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"Chemicals for Agriculture—Exclusively!"

could count. The Port-o-Phones—one
the first floor, one on second, and one in

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"SUPER 600" BATCH BIN

. . . . a 600 bu. capacity and recirculating system for *MORE PROFIT NOW* and *YEARS FROM NOW!*

SUPER-FAST Dries 200 bu. of shelled corn from 25% to 15% moisture content *in one hour.*

SUPER-SIZED Automatically recirculates up to 600 bu. per hr. Offers 500,000 to 4,000,000 Btuh with huge air delivery.

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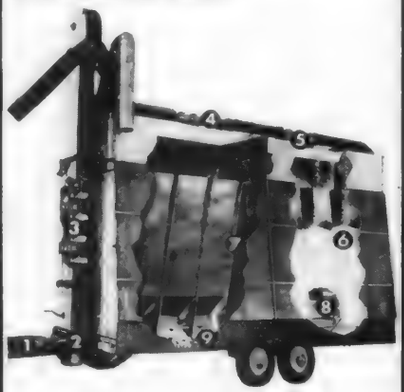

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"SUPER 300" BATCH BIN

Basic bin and heat section, same as "Super 600" basic bin and heat section. 300 bu. cap.

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ravages of the current generation of grub, and with thorough use, forestall any recurrent generation of grubs.

Now a farmer can stop the grub before it makes a dairy cow kick when the surcingle is wrapped over her back for a milk machine. Riding herd to gadding cattle, which instinctively fear the mouthless heel fly, is like trying to corral a jack rabbit, say Montana herdsmen. A systemic spray or bolus the season before may be the best tranquilizer.

SPEAK TO ME

(*Continued from page* 75)

back in minutes. That stoppage lasted half an hour instead of three."

The older men in the area criticized Jim Reiter for taking in a radio. He recalled "They said a farmer doesn't have any need for radio. They're right—if he doesn't have anything going on. It's no use if you can't use it.

"Take away my pick-up," said Jim Reiter, "take away one of my men. Take away my telephone, but don't take away that radio." He sounded for all the world like Bre'r Rabbit in the briar patch. Bawn an' bred fo' de radio!

Sales and Service

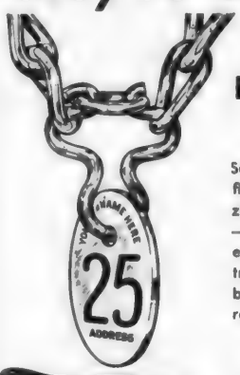
Winfield, Iowa, is hardly a city. Breakfast with two eggs still costs 55 cents, parking meters are unknown, and at seven o'clock in the morning there were five of the village elders on a bench on the high street. They sat in blue overalls and deep thought outside the store of the Hillyard Implement Company. The atmosphere was anything but tense—in Winfield they still say good morning to strangers. But inside the communication was less casual. Homer Hillyard from his office, dark in the building, could show many a city slicker a thing-or-two about communications and control.

In an office six feet square, Hillyard has a base radio unit linking him with three mobiles on his service trucks. On the wall is a phone giving a direct line to two warehouses—one ring for the nearest, two for the other. On his desk is a wired intercom —a Talk-a-Phone with which he can call anyone in the store or the repair shop behind and talk with them. Then there is the regular telephone with extensions around the store and shop.

Is this too much for a country implement dealer? Forehead wrinkled, hand rubbing a brown arm, Homer Hillyard justified the investment. "One day I did a little checking—and I know one serviceman saved 300 miles of driving. We reach out quite a little ways here, and you've got no means of contact without radio. I wouldn't take the thing out if it cost twice as much as it did." And it cost around $3,500.

Hillyard tried a small radio first, and was thoroughly disappointed. Then, 18 months ago, he bought the larger equipment with "Private Line." This is a devic

Best because they're STONE



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Solid brass identification tag — zinc-plated chain —easy-open fastener. A durable trio that will not break or deteriorate.

STONE'S Tattoo Pliers

Clean—sharp—permanent mark every time. Instrument shown has ear release which prevents tearing the ear. Standard instrument available without ear release.

Write for FREE literature on other STONE products.

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McDOWELL COUPLINGS MAKE IRRIGATION *More Profitable*

The simplest, fastest way to join irrigation pipe!

With McDowell—*the quality couplings and fittings*, there are no hooks or latches to cause extra work and costly maintenance. Water pressure provides a tight seal automatically. You can set-up, take down and move a McDowell Coupling System faster and easier. And rugged McDowell Couplings work better, last longer, need less care.

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Please send literature, details on McDowell Coupling Irrigation.

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Address___

that cuts out all other radio except one's own units. Hillyard listens to no static. "They call it skip," he said, "but to me it's just noise. That first set I had wasn't worth a damn. It was one continual scream of background noise."

With the larger set, a range of 35 to 40 miles saves a lot of time. "A serviceman may go out in the morning with just one call. When he gets home he's made upwards of a dozen," said Hillyard. "All the expense and fooling around of coming back to the store is gone. I've got two of the best mechanics in this country. With men like that it pays to have radio."

His private phone line to the warehouses saves him many a trip every day. It costs $3 a month, was put in by the phone company two years ago, before Winfield went to the dial system. The hand crank ring is there still. The intercom system in the shop saves a lot of walking for Hillyard and his men, and completes a tie-up of all the employees into the little office. Hillyard is confident he is leading the field. "Any man in the implement business who intends to get bigger, has got to have something like this. It's like the farmer. The small farmer is done, and so is the small implement dealer." Hillyard continued, "We have a half interest in a small store in Mediopolis, 18 miles away, and we hope to have radio there again by next year." He laughed. "Would have it there already if we hadn't put that small set in there first. He got a bellyful so quick he wouldn't try this one."

The gadgets provide a top-rate service, according to their owner. "Service is a necessary evil," he said. "Nobody ever got rich on service. But to have sales, you've got to have service. With all these modern aids," Hillyard said, "sometimes I wonder if I'm going a little buggy—but then gosh I *know* it pays a man; there's no question about that." But he hasn't gone as far as Jim Reiter. He doesn't use the call-signs and the number codes. "We just talk the English language into the thing," confessed Hillyard, "as best we know how."

Always Listening

Mr. and Mrs. James J. Marek have never missed the dropping of a lamb from their registered Shropshires since they installed a Port-o-Phone. This is a small, radio-like box, with a switch for listening or speaking, which uses the regular power lines to transmit. The little intercom plugs into the existing wiring on the Marek farm at Clifton, Illinois, and is left on day and night. The unit in the barn has been continually transmitting for at least a year and half without stop. "The only trouble so far," said Jim Marek, "was the mice. They got into the set to keep warm in the winter, and got fried on the tubes. We stopped that with some wire net."

Mrs. Marek, at home when her husband works off the farm, finds more than one use for the squawk boxes. "The three-way system has saved us more steps than we could count. The Port-o-Phones—one on the first floor, one on second, and one in

Let 'er blow!

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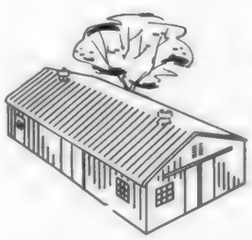

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There's a big difference between nailed-on light metal sheathing and heavy-duty 18-gauge steel panels bolted together. Let the wind howl — let the snow pile deep — let lightning strike — and you can still enjoy peace of mind. Your LOK-RIB Building is factory-engineered and tested to meet severe weather conditions with a wide margin of safety. Furthermore, it protects your property from rot and rats!

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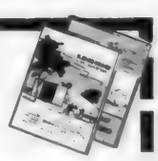

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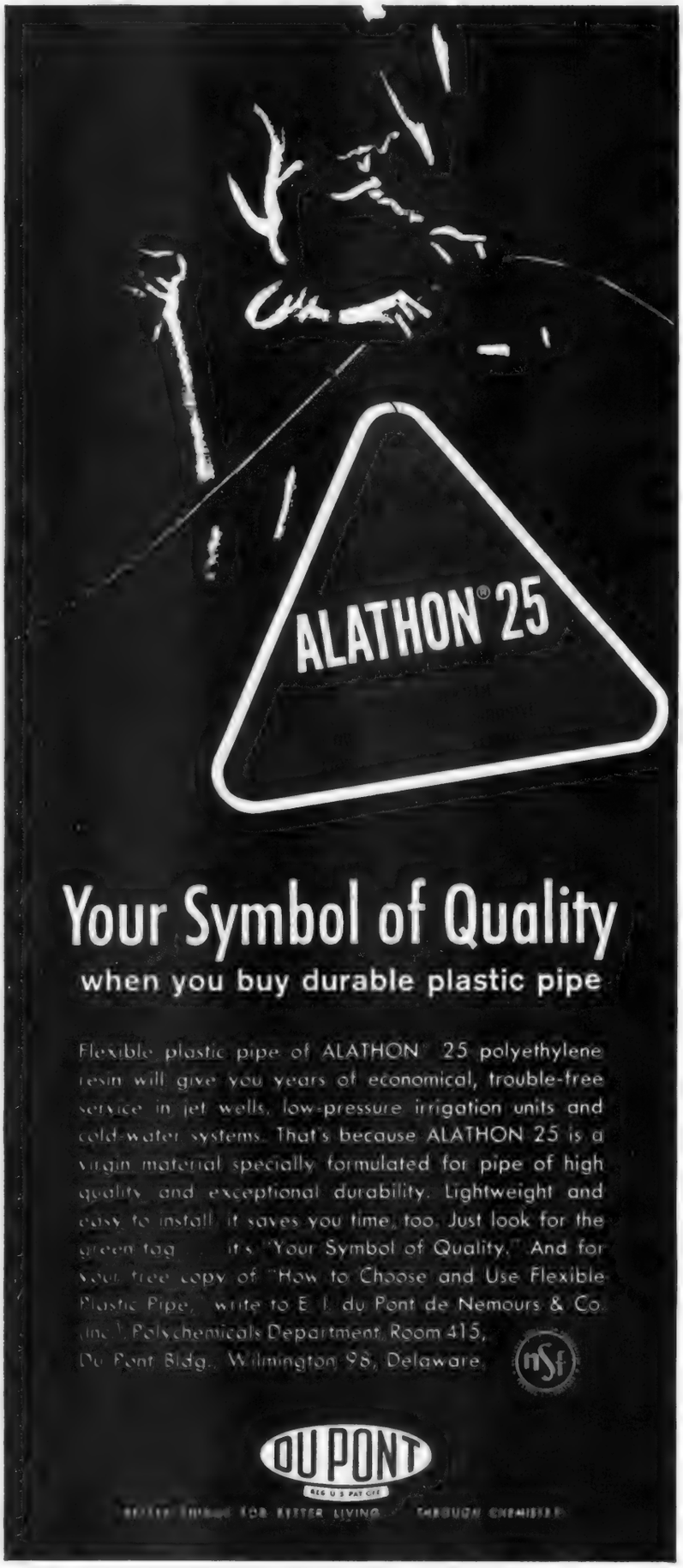
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the barn, require no wiring. They plug into an electrical outlet and go to work.

"During the lambing season, we turn the switch on the barn set to constant transmission. When I am in the house I can hear every move the sheep make. At night we get used to the constant shuffling around out there, but the slightest sound that any ewe is about to deliver—even the pawing to make a nest—wakens us. If we have stayed up late, or are especially tired, we may set an alarm to waken us every two hours. But instead of running to the barn, we listen and know whether or not something is cookin' out there."

With the arrival of their youngest daughter, now two and a half, Mrs. Marek found a new use for the sets. "When I had to make a trip to the barn, I set the house set to constant transmission, turned the barn set to receive, and heard every move the baby made." She continued, "Of course, the sets never go into mothballs. We use them throughout the year to call people to meals or to the phone. Our fifteen-year-old son gets plenty of phone calls. And our seventeen-year-old daughter, with a zillion irons in the fire, gets more calls than Denny. So-o-o, if I had to holler for them, I'd be hoarse, and if I had to run for them, I'd be lame.

"In answer to those people who might scorn our high-falutin' system," Mrs. Marek emphasized, "one sheep saved in our pure-bred Shropshire flock could very well pay for the whole system." One unit costs around $49, and uses the same current as a 25-watt bulb. They are made by the Feiler Engineering and Manufacturing Company, Skokie, Illinois. "There are other good systems which are less expensive, but they require wiring," said Mrs. Marek. "We find it handy to be able to move the sets around. For example, when we had only six ewes left to lamb, we moved them from the big barn to a smaller building, and moved the Port-o-Phone right along with them." The units will work up to six miles as long as they are inside the highline transformer.

Tailored Telephone System

A network of telephone extensions on two Missouri farms is part of an experiment to fit the special demands of a farm operation by the General Telephone Company. The project, begun last fall and due to be completed this year, is seeking the best arrangement of telephone extensions to serve farm needs.

Mr. and Mrs. William Frech, with a 456-acre grain and cattle operation ten miles north of Columbia, Missouri, have nine extensions in various outbuildings and rooms of the house. Frech, who spends much of his time in the dairy barn tending his 70 head of stock, said the main advantage of the phones is easy access to the farm house. "It keeps me from running my legs off." Not only does it save him going to the house to use the phone, but he can take calls while at work. "The best thing about it is that people can al-

ways gets in touch with you," he added. A gong on a post in the farmyard rings loud when a call is made, and a buzzer operated from the master phone in the house can call anyone to an extension.

The second farm with the spider's web of telephones is the C. R. Fitch farm, Route 5, Columbia, a 350-acre corn, wheat, hog and purebred Angus operation. The system is much the same, save for the addition of a wired intercom squawk box. Fitch has 5,000 turkeys on his farm, and the box enables him to tune in on his birds at any time. Much as Mrs. Marek with the sheep, Fitch can check on the birds and hear if they are bunching together, or if something is bothering them. "I can hear if they are piling up, and get to them before they smother," said Fitch. "The building is 168 feet long, but the squawk box picks up every sound."

About the phones, Fitch is practical. "I can answer the phone on the porch and save pulling off my muddy boots." Interest in the phone set-ups is spreading. Both men say every one who comes around takes notice of them. C. R. Sites, district manager of the Telephone Company, explained, "We put in phones just about every place on the farm for saturation purposes. We wanted to learn where the family spends most of its time." The Company will put out a report of the operation at the end of the year.

Apart from the extension, there are several recent additions to telephone services. There are many signalling devices—loud ringing bells gongs, horns, musical chimes and even visual signals to let you know there's a telephone call when you are out of earshot of the standard ringer. All go into action when the phone rings, some on phone current, some on 110-volt commercial power. There is the Speakerphone, a small microphone and loudspeaker, which is used without picking up the hand set of the phone. When the phone rings you press a button, and talk and listen. Convenient when your hands are full—or dirty.

Most of the devices are rented from the telephone companies and costs vary in different areas. A regular extension may be 50 cents or a dollar a month. The Speakerphone costs about $5 a month. The ringing devices are usually less than a dollar. There is also a volume control phone for persons with impaired hearing which adjusts on the phone itself. Radio-telephones for use in automobiles—an extension of the conventional public telephone system—are well known and widely used. They rent for $30 to $50 a month. Private two-way radio systems, on the other hand, are leased or purchased directly from the independent manufacturer.

A farmers' co-op in Watseka, Illinois, has a base radio and nine mobile units. "We wonder how we got along without it," said the manager, C. P. Koonce. "We can give the farmer better and faster service for feed or fertilizer, and at much less ex-

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COVERALL
As handy around the farm as an extra hired man!
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WARP'S PRE-CUT ROUND SILAGE COVERS ARE AVAILABLE FOR ALL SIZES OF SILOS.

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For 12 ft. Silo--$5.90 For 16 ft. Silo--$8.50
For 14 ft. Silo--$7.10 For 18 ft. Silo--$9.95
For 20 ft. Silo--$12.50

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They store it in bins or silo in four foot layers, each layer being sealed off air-tight with COVERALL.

- WATER-PROOF
- ACID-PROOF
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- STAYS FLEXIBLE AT 60 BELOW ZERO

Price per Square Foot	Widths Avail.--100 Lin. Ft. Rolls
2 Gauge (.002)....1c	3, 4 & 9 ft. widths, 100 ft. long
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Warp's Manufacture COVERALL in Two Types To Meet Any Need and Weather Condition

MOISTURE-PROOF CLEAR — for "see-through" inspection and quick inventory. Meets FHA Specifications.

SUN-RESISTANT BLACK — for use where protection against sunlight is needed in addition to preventing damage from moisture.

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(6 mil Black recommended)

BALED HAY
(6 mil Black recommended)

Fertilizer & Seed Covers
(4 mil Black recommended)

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Walsh FARROWING STALLS

• Keep sow from crushing baby pigs. Modern, sanitary, all steel. Sections lock together. No bolts. Erect in less than 30 minutes. Fully adjustable. Cost less than rough lumber.

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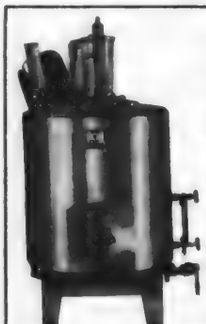

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pense. But besides that, in the recent floods in Illinois, we had the base unit going all night. With the phone nearby and units in various boats and trucks, we kept a pretty tight finger on the way the water was going. When someone needed help they got it fast." Later Koonce chuckled, "Besides, I know where every road block on the highway is—and every speed trap in the county."

Quo Vadis Television

The last link in the communication lineup is the visual. When will television come to be used on the farm? Farm programs on commercial TV are well established, and the weather services are an aid to crop conscious farmers. But the set is being used for more specific purposes. From 9 to 10 a.m. on January 13 this year, channel five, from Ames, Iowa, was used to instruct county agents in applying a TV series which was to follow. The program, outside normal viewing hours, was watched by more than 90 per cent of the extension staffs of Iowa counties. Those outside the viewing area drove to where they could receive. But with 100 extension staffs, a lot of driving was saved. This was one of the first uses of television to instruct a small group of people on a specific subject. And its success was such it will be used again.

The American Veterinary Medical Association will use private line television during its convention this fall. The flourescent screen now is only creeping into the farm picture. Perhaps soon it will be entering at a gallop.

PICKLED CORN

(*Continued from page* 61)

14x50 holds another 6500 bushels of high moisture shelled corn.

Brandt tries to get his corn into the silos when the moisture content is about 25 per cent and if it's much below that figure he will even add water to bring it up. Cattle, says Brandt, like the high moisture corn much better than cribbed corn, and both his hogs and cattle are giving him highly satisfactory gains on wet corn.

Probably the biggest advantage from Brandt's point of view is the labor he saves by storing wet corn in silos. But he also eliminates the rodent and insect problem he gets with cribbed corn.

The ideal structures for storing high moisture corn are the glass-lined Harvestore and the airtight, steel Silver Shield silo. One of the biggest advantages, according to Floyd Waltz, is that you can keep adding feed to the silo any time you like. He fed out a second lot of cattle last year on wet ensiled corn and figures that he practically paid for his silo in its first year.

But there are other structures also being used for wet corn storage. The common concrete stave silo is one and plastic lined metal grain storage bins are another.

LOOK—A REAL McCULLOCH ONLY $149.95

At last, a professional-quality chain saw made for farm use — and for the farm budget! McCulloch's new Mac D30: Easy to carry! Easy to use! Built for hard work . . . toughest conditions. A tool you can depend on.

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ONLY $149.95—complete with 12" blade and long-lasting smooth-cutting PINTAIL chain. Handles blades up to 30". Terms as low as $3.69 weekly.

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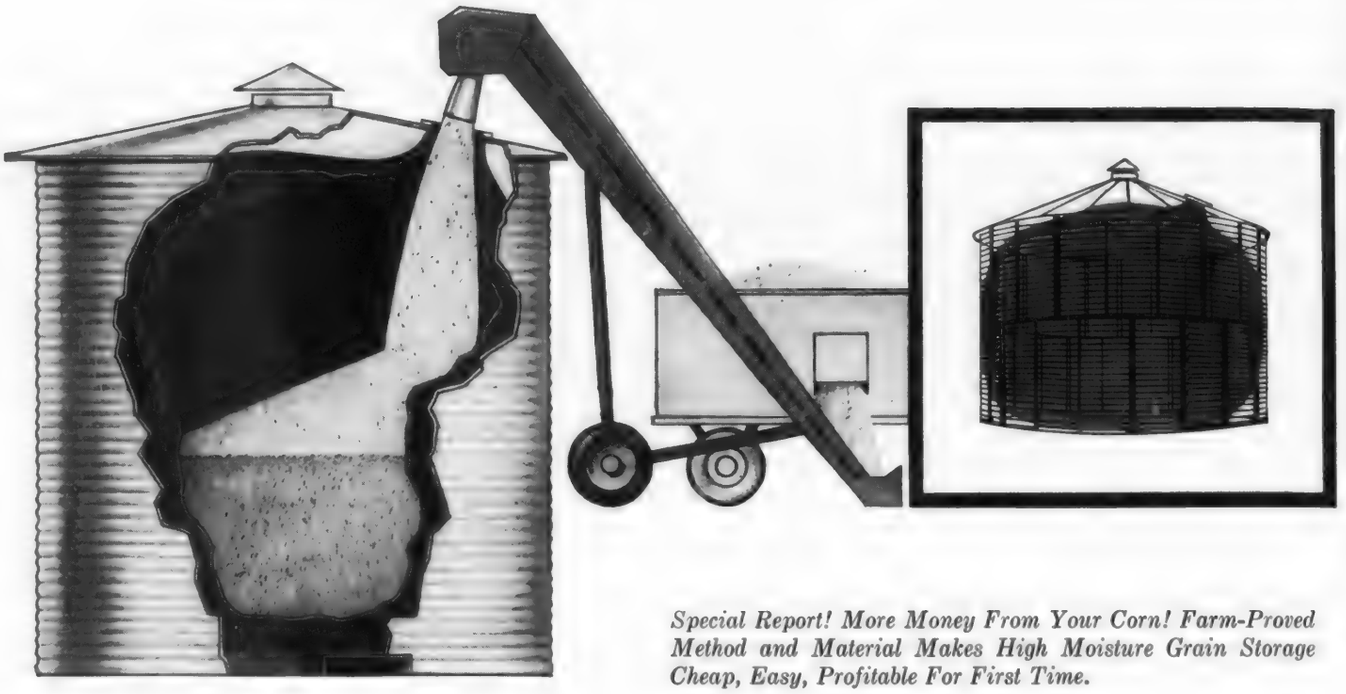

Special Report! More Money From Your Corn! Farm-Proved Method and Material Makes High Moisture Grain Storage Cheap, Easy, Profitable For First Time.

Announce airtight black VISQUEEN TRADE MARK film grain bin, crib and silo liners available in time for this year's crop!

Tests Indicate Hogs Gain 8% More Per Day On 19% Less Protein Supplement When Fed On High Moisture Corn Stored In Black VISQUEEN Film. Beef Also Gain Faster.

Now you can pocket your grain drying money! Corn stored at 23 to 35% moisture, produces more gains than dry corn.

Now you can get into this profitable way to store your high moisture corn and sorghums—and pocket the thousands of dollars you'd have to pay for permanent, gastight silo type storage.

Black VISQUEEN film costs less per bushel of high moisture corn stored than the per bushel drying cost! Costs less per bushel stored than the annual interest and upkeep of permanent, gastight silo type storage!

And high moisture corn stored in black VISQUEEN film earns more for you to boot!

HOW IT WORKS— All you need is a metal grain bin, crib, silo or other enclosure. Black VISQUEEN film comes in tubes of various lengths and circumferences. Tie off an end of the tube. Put it in the bin, protecting the film against sharp objects. Roll the tube down like a stocking. Fill by elevating grain, rolling the film up again as you fill. Tie off top.

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You now have airtight storage at a fraction of the cost—and a fraction of the labor in any other method!

YOUR CROP SECURE—No matter what your livestock feeding or crop program may be from year to year, you can get in and out cheaply, easily with high moisture grain storage in black VISQUEEN film.

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And no matter how *good* the weather, you'll turn a bumper crop into more profits . . . feed more stock on less supplement . . . with inexpensive storage in black VISQUEEN film. You fill and feed where most convenient. End drying. Cut labor. Cut investment to a minimum.

ACT NOW! PROTECT YOUR CROP! GET MORE PROFIT FROM YOUR CORN. MAIL COUPON FOR FREE INFORMATION.

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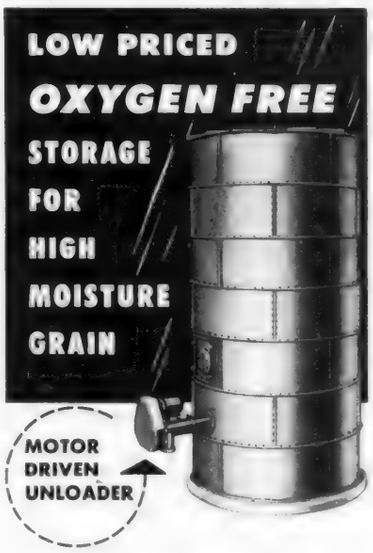
How successfully can you store wet corn in an ordinary upright silo? Russell Brandt has been doing it four years and knows it works. His silos are both made of concrete staves. He keeps spoilage to a minimum even though his silos aren't roofed. "As soon as we fill a silo," he says, "we cover the feed with a plastic silage cap. After this cap is put in place I cover the entire cap with from six to eight inches of sawdust, then seed some oats in this sawdust. When the oats sprout it gives a good root mass which will hold this cap firmly in place."

Brandt usually starts feeding from his silos about the first of May when field work gets heavy. "During winter months," he says, "when we have more time for choring, we grind and feed directly from the corn cribs." He gears his operation to keep feed moving out of his silos regularly and consequently doesn't even have spoilage during the hottest months.

On the Harold Warp farm at Minden, Nebraska, they use a nice refinement. Each four feet of corn is covered with a plastic sheet and a strip of plastic covers all doors. With this system the silo can be emptied in four-foot layers without endangering the corn below. The cover, Warp says, should be of two feet larger diameter than the silo and at least 4 mil thickness.

Storage of wet corn in silos may put greater pressure on them and the silo



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SEE YOUR EZEE FLOW DEALER RIGHT AWAY for full details on this special Soil Test Kit offer. Available only for limited time.

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ONLY EZEE FLOW GIVES YOU THIS REMARKABLE GUARANTEE OF PERFORMANCE

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Thousands of farmers are making **MORE MONEY** from their livestock and poultry this year because they are furnishing them all the fresh, clean water they'll drink . . . in summer and winter! Leading producers and authorities agree that livestock and poultry need plenty of water for fast, cheap gains . . . and they get it with RITCHIE automatic non-syphoning heated waterers. You'll save hours of chore time, too, because RITCHIE Waterers work unattended, 24 hours a day. Heavy all-steel construction. Guaranteed quality-built RITCHIE Waterers are extremely durable and economical. They can really take it . . . and outlast other waterers by years. Finest heating elements and materials throughout. Save up to 40% on heating costs. Thousands of satisfied users. A model for every possible farm need.

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Jamesway user Clarence Benjamin, Rt. 2, Litchfield, Minn.

"I bought my Jamesway Shuttle Stroke barn cleaner in 1948. The original bar is still doing a fine job in the gutter. Should last another ten years without replacement. Because of the fine performance of the barn cleaner, I recently bought a Jamesway Volumatic Silo Unloader and Jamesway Sani-Kool 400 gal. Ice Bank Tank."

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Shuttle-Stroke Barn Cleaner

exclusive push-pull action "unchains" barn cleaner design

Look — no chains in the gutter! Jamesway Shuttle-Stroke doesn't need them. Exclusive push-pull action "sweeps clean" . . . mixes liquids and solids . . . loads them to the spreader in one smooth operation. Elevator runs four times faster to get liquids and solids up into spreader. Only 20% of your cost is in the gutter, less exposed to corrosion.

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- **No chains, gears, sprockets needed in gutter . . . gutter-bar and piston tied with *stainless steel cable*.**
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$1.00 a day takes backaches away with Jamesway's "pay as you profit plan."

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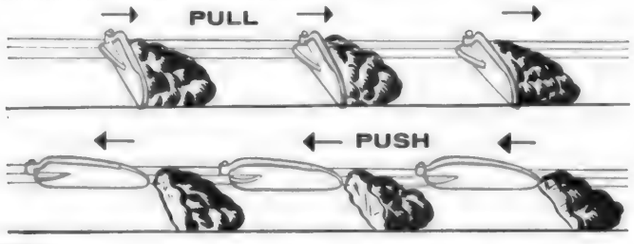
The exclusive principle: "shuttle-stroke" action. The operation: "push-pull" simple. Paddles move litter forward on the "pull" stroke . . . then fold back on the "push" stroke to by-pass the litter. Quick, clean . . . fewer parts in the gutter.



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company should be called in for consultation if the plan is tried with concrete silos.

Few people so far are ready to suggest that wet ear or shelled corn be stored in trench silos. The high value of this feed and the large amount of it exposed to air invite serious loss in feed.

Sack Dress for Steel Bin

But one other method under study at Purdue is the possibility of storing wet corn, either ground or shelled, in cribs lined with airtight plastic bags. There is promise in this method for farms lacking satisfactory silo space for wet corn.

One farmer who has tried the plastic silo lining with some success is Everett Horaine of Fairmount, Indiana. Horaine had heard of the plastic bag plan last fall when he suddenly needed additional storage space for shelled corn destined for consumption in the hog lot. He purchased polyethylene which he converted into an airtight bag to fit into his silo, then filled the silo sack with corn that tested 30 per cent moisture. The idea worked because it seals air out of stored grain.

Horaine unloads shelled corn from his silo with a 16-foot auger permanently installed in the bottom of his silo with the plastic sealed around the auger. The auger moves corn directly to feeders.

The Purdue Agricultural Experiment Station research is still under way on these plastic grain bags. It began in 1955 when G. W. Isaacs, I. J. Ross and E. R. Baugh began storing corn in 10-pound plastic bags. What they wanted to know first was whether corn of 25 to 30 per cent moisture could be stored in plastic air-tight bags.

Within a few months they knew it could, so the next year they stored 500 bushels of 25 per cent moisture in a cylindrical metal bin lined with a plastic bag. When they began to remove the feed 10 months later, for a series of feeding tests, there was practically no spoilage and the corn had that soft texture and fermented odor typical of wet corn stored without air.

This plan has some hazards and one of the obvious ones is that sharp projections on a grain bin can puncture plastic. The metal bin used in the first Purdue experiment was constructed with round-headed bolts with the heads on the inside. The bin was then checked all around to make sure mice couldn't get in, and any hole of lead pencil size or bigger was sealed. Strips of plywood covered projecting metal around the door. One of the door slats was replaced with a steel plate into which had been welded a four-inch length of six-inch pipe so an auger could later be inserted for unloading the bin. An expansion plug held air out once the plastic was opened behind the pipe.

Before plastic was put into the bin, the metal crib was lined with heavy brown paper to give the polyethylene added protection. The paper was held in place with dabs of asphalt roofing cement.

The plastic bag for such a silo can be

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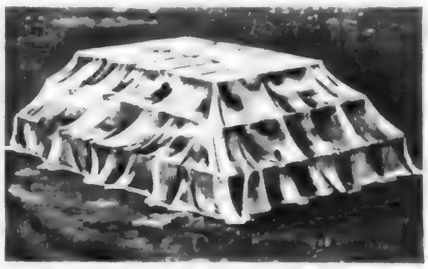
Upright Silo Cap

An efficient, easy to use, sturdy cover to cap silage stored in upright silos can be made from black 4 mil Durethene film. The cover is made to the diameter of the silo plus approximately twelve inches all around. Individual widths can be joined by stitching or sealing. The outer edge should be triple hemmed for added reinforcement. For extra weight, a length of galvanized chain may be hemmed around the cap edge.



Hay Stack Covers

Here's an application for Durethene film that can prevent loss of freshly cut hay. Tarpaulins made from waterproof Durethene film are excellent covers for hay stacks. The film keeps out rain and it can be used for both temporary and permanent storage. The film is extremely durable, yet it is so lightweight that two men can cover large stacks with little difficulty. Covers are reusable and will last for many seasons.

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put together in a few hours on a smooth lawn, "preferably on a calm day," say the Purdue researchers. The plastic is 6 mil polyethylene and comes in 100-foot rolls in a variety of widths. You first form the sheet into a tube about a foot bigger in circumference than the metal bin. Then you seal the lap joint of the tube on one side only with 1½ inch plastic, pressure sensitive tape (Minnesota Mining and Manufacturing Co. 193). About four feet of surplus tube is left at the top for tying it off and enough extra is left at the bottom to equal the diameter of the bin which permits tying the bottom in grain bag fashion.

Once this bag is installed in the bin it's a good plan to lay a square of plywood in the center of the floor to keep the auger from damaging the plastic. The bag is unrolled upward as the bin is filled and held in place by props until supported by the grain. Once filled the bag is gathered at the top over the corn, wrapped with a strip of burlap, and tied airtight with wire. One company has announced they will soon market pre-formed tubes of standard grain bin diameters.

The cost of this lining for a 3000-bushel storage bin runs about 2½ cents a bushel. If you're careful, says Purdue, the bag may last for two or three years.

Ground ear corn would probably keep as well as shelled corn but getting it out of the bin would present more of a problem. This is often a difficulty with the last 500 bushels of shelled corn in a plastic bag.

Regardless of how you store wet corn in airtight structures the time for picking it should be based almost entirely on the moisture content. Purdue researchers feel that it's at its best for storing this way when between 32 and 35 per cent. At this stage there is a lot more moisture in the cob than in the grain so that shelled corn will test out about 6 per cent less moisture than ground ear corn. "You may be able to gum some in at 38 per cent," says T. W. Perry, "and it will be all right if you can get it in the silo." It's right in that stage around 32 to 35 per cent that the ear begins to "firm up." Most grain elevators aren't equipped to test corn higher than 30 per cent moisture, so Dr. Perry suggests starting to store it as soon as "you can't twist it. Of course," he said, "it has to be fully dented, yellow and glazed." The real test is whether or not your equipment will get it into the silo, and whether its moisture is too high to keep it in a crib.

Some of the grinders and blowers on the market today will work smoothly on high moisture corn, grind it fine and blow it into the silo at rates of 200 bushels an hour or as fast as a two-row picker can harvest it and send it to the barn. At least one grinder manufacturer even points out that their mill will grind corn that has soaked overnight in a horse trough or whatever passes as the modern equivalent. An ensilage chopper set for a fine cut has done the job for some feeders. But a burr

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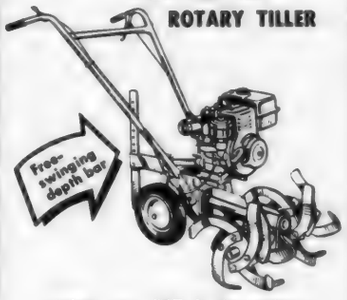

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mill or hammermill is usually better.

The primary requisite for grinding this type corn is that it be ground fine. Some of the best of it is a fine meal so thoroughly ground and mixed that cattle consume all of it. "You won't," says T. W. Perry, "be able to grind it too fine."

There is no point to adding preservatives to this silage for the sugar content of the corn itself is a preservative.

Grain Sorghum, Too

Could you store high moisture sorghum head grain in the same manner? The Iowa researchers have dug into this question, too. Sorghum growing in the Ames, Iowa, area in the fall of 1957 was so high in moisture that there was a serious question about whether is could be safely stored in the usual manner. At the Iowa Experiment Station they harvested 12 tons of sorghum grain when the moisture content was about 40 per cent and stored in a silo without grinding. Within 10 days it had taken on a mild silage odor and averaged 35.9 per cent moisture when fed to 29 medium grade yearling steers.

These steers ate almost as much on a dry matter basis as steers fed cracked shelled corn but gains were 15 per cent less. The steers fed sorghum head silage took on less finish and sold for somewhat less per hundredweight. The feed kept well stored as silage and the steers apparently relished it but the researchers concluded that it would have been better utilized if it had been ground before feeding.

With heated air drying and wet corn storage now available, it looks as though we can whip the wet grain problem.

ALL THE LAND NEXT TO MINE

(*Continued from page* 62)

fantry after the shooting started, but was so near-sighted he was soon transferred to the quartermaster corps—largely for the protection of his fellow infantrymen. In this branch his spectacular commercial talents had every opportunity to develop. Though he was penniless at the end of the war he seems to have been mustered out with a reputation as a first-class trader and with the connections necessary to launch a successful career in a devastated land.

Just where Smith got the money to buy his first acreage and how much he started with are still loose bits of the legend. One story has it that he was a pretty fair mechanic and accumulated a few hundred dollars repairing such widely contrasting items as watches, clocks, buggies and wagons. Then he took a contract to furnish ties for the Georgia Railroad, and "completed this work with much profit," using the profits to buy land.

The other version, one which seems to have a lot to recommend it what with Colonel Jim's reputation as a trader, is that he ranged over the hills of north Georgia, Tennessee and North Carolina

with his horse and wagon peddling an assortment of tinware and trading for anything in sight. That he had made himself well known in these parts became all too apparent after his death when Smiths from these regions descended upon Oglethorpe County to file claims to his estate.

And one of the most persistent tales connects his peddling with a shattered romance. As the story goes, he fell in love with the daughter of a wealthy farmer, but when he asked permission to marry the girl, the father rebuffed him with the remark, "My daughter will never marry a po' white trash peddler and eat turnips for the rest of her life." Said Smith as he removed his shadow forever from that doorstep, "Some day, sir, I shall have a calf pasture bigger that your entire farm."

However he acquired the money for it, the fact is that Jim Smith did buy a farm in the northern part of Oglethorpe County in 1866. The generally accepted story is that this was a 65-acre piece of worn-out land on which in that first dry year he made two bales of cotton and fifty bushels of corn, and wound up in the red. W. Henry Smith, his nephew and one of his heirs, says he started with the 150 acres of the old Mathis place; and Hamilton McWhorter, one of his attorneys in his latter days, estimates that his original holding was exactly 400 acres.

According to McWhorter, Jim Smith borrowed money and bought more land in 1867 and made 300 to 400 bales of cotton that year. He was on his way to achieving that limitless and illogical goal of "owning all the land that's next to mine." Yet, it is said there were certain parcels he never tried to acquire because he liked the owners and wanted them for neighbors.

When he really wanted a piece of land, though, nothing was going to stop him till he got it. One of storekeeper Hancock's favorite tales is "how old man Jim Smith got an acre of land from old man Bud Hancock when old man Jim was building his railroad to connect with the Seaboard at Colbert." This was when Smithonia was at the height of its glory.

Colonel Jim had built the Smithonia and Dunlap line of eight miles some years before to connect with the Georgia Railroad. Most of his traffic was freight,

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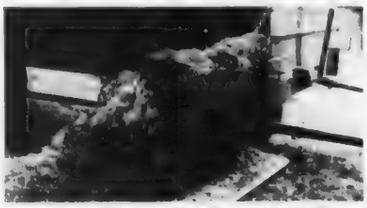

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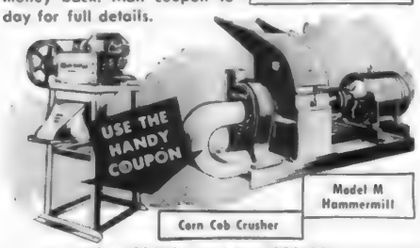

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though he occasionally rolled his lone passenger coach up and down the line when he was taken with the urge to go a-traveling or to greet a distinguished visitor.

Realizing that with only one rail outlet he had no leverage for demanding competitive rates, he determined to build a connection with the Seaboard Air Line at Colbert to the north of Smithonia. He owned all of the right-of-way with the exception of the last acre of land adjacent to the Seaboard tracks. This was owned by Bud Hancock, who refused to sell it for the $300 Colonel Jim offered.

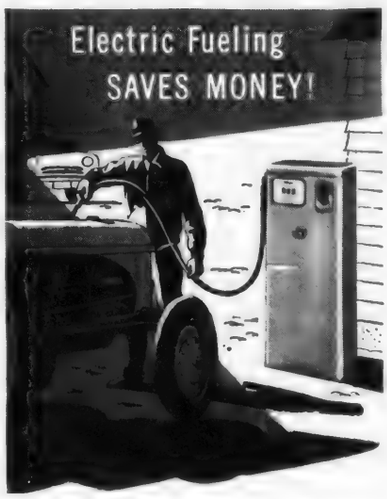
"Well, one morning, old man Jim decided he'd had enough of this fooling around about trying to buy," recalls storekeeper Hancock, "so he loaded his rails and ties on his flat cars, took his hands and his mules and his scrapers, and went over there and started to lay track.

"Old man Hancock had seen him comin', and he hitched up his buggy and went driving hell for leather to get the sheriff. By the time him and the sheriff got back, though, old man Jim had those tracks laid and tied into the Seaboard.

"That was old man Jim for you. He'd never go out looking for a fight, but if you got in his way you were liable to get hurt. They finally arbitrated and old man Bud didn't get but $50 for it."

The Financier

The shrewd use of capital funds was un-



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doubtedly one of the keys to Jim Smith's growth. He was always borrowing and lending money, and it is said he never signed a note once he became wealthy. His borrowings from the National Bank of Athens were all on overdrafts. "There were times," says McWhorter, "when he was as much as a half million overdrawn."

W. Henry Smith tells how young Jim learned to use credit: "Back in the days when he was running only 15 or 20 plows he had a complete crop failure one year. He drove down to the bank in Athens to borrow $1,000, but old man White said money was scarce, and turned him down.

"Well, he had a friend by the name of John Holder up in Jackson County to the north of Athens, so he drove on up there and told about his hard luck. He was in a hurry to get back, but Tom prevailed on him to stay overnight, and the next morning he told him, 'I can let you have the money, James, but if you're going to make good, you'd better take $2,000.'

"Jim told him to fix up his note and tell him how he wanted it paid back, but John said, 'I don't want a note. I trust you,' and gave him a check on the National Bank of Athens.

"Jim drove back to Athens, and presented the check to old man White. Jim grinned as he said, 'I see you had some money in this bank after all, Mr. White.'

"I remember years later when he wrote a check on that bank for $100,000. His secretary told him 'You only have $15,000 in the bank, Mr Jim,' but they honored his overdraft for the rest."

Farming a la Smith

Observers came from all over the cotton producing world to learn the secret of Jim Smith's success. The Khedive of Egypt sent a Pasha to study his methods. It was alleged he had developed certain superproductive strains of cotton; that he had introduced alfalfa into a region which is still a strange land to that king of legumes. But E. C. Westbrook, retired cotton extension specialist of the University of Georgia, who visited the plantation often in its latter days, feels the Smith success was not founded on unique methods. "He did everything just as everybody else did in those days, only he did them better," Westbrook says, "and he used most of his time and land growing cotton rather than in growing subsistence.

"True, he grew 3 bales of cotton to the acre at a time when the state average was only about 200 pounds. But he only did that on small 'brag' plots. His overall average was probably more like three-quarters of a bale per acre."

He was a staunch advocate of the theory, "Make your land rich, and it will make you rich." Large herds of cattle—mostly grade Jerseys—were fed on the plantation primarily to get the manure which was mixed with phosphoric acid and spread on the land.

He used 300 to 400 pounds of fertilizer

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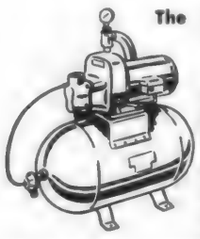

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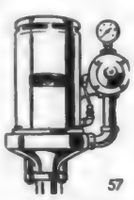

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per acre on his cotton land. Some of this was bought; much of it was produced in his own guano plant which had a capacity of about 50 tons a day. It was usually a 3-8-8 mix, the nitrogen being derived chiefly from cottonseed meal, blood, tankage or fish scraps. The potash was kainit (12 per cent potash), and the phosphate 16 per cent phosphoric acid.

Two to three thousand bales of cotton per year was his usual production in good years, and he had a little trick to stretch this yield. His own cotton, as distinguished from that grown by his share croppers and tenants, he ginned last, usually in February or March. During the time it was in storage in the big brick warehouse it would improve and gin closer and better than it would when picked damp. The result was not only more, but a better grade of cotton as well.

Two crops a year from a field was another Jim Smith specialty. His yield from one 200 acre plot in 1904, according to Harry Hodgson, who did a feature on him for the old World's Work Magazine, was 4800 bushels of wheat and 200 bales of cotton for a gross of $14,800.

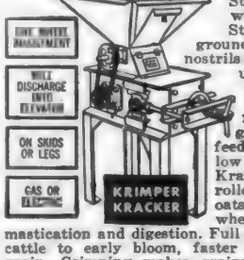
To provide milk for his hands he operated a dairy of 75 to 100 cows. The butter which he delivered to nearby towns by his butter wagon was a cash dividend.

Large numbers of hogs were fed on the place, too, and the pork was sold "off the pole" to consumers. The slaughtered carcasses were hung on poles in a wagon, and sides, hams, loins or shoulders were cut off to the customer's order.

While most figures on the total annual yield of the entire Smithonia empire are mere guesses, an approximation of production on the home place is furnished by the record of returns appended to the booklet the Colonel published in 1912. This shows the 4,000 acres of cultivated land in this parcel yielding the following:

1,754 bales of cotton of 500 lbs. each from 2,688 acres; 52,620 bushels of cotton seed from 1,754 bales of cotton; 18,175 bushels corn and 72 tons of fodder on 727 acres; 4,000 bushels wheat on 200 acres; 7,560 bushel oats on 252 acres;

Home Crimp Your Grains CUT FEED COSTS 20%



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750 bushels peas on 75 acres; 112½ tons Bermuda hay on 50 acres; 800 tons peavine and sorghum hay second crop on 400 acres of grain land; 100 acres of other green forage and hay; 60 acres of Irish and yam potatoes, watermelons, turnips, gardens and sorghum patches.

Close to 500 acres of this land was double cropped. Gross income was about $181,000. But as this was in pre-income tax days, there is reason to believe there may have been some overstatement here.

Labor Relations

Whether Jim Smith was a saint or a devil depends upon who tells the story. This is most true of his relations with his tenants and hands. There were three classes of labor on the farm; convicts (from about 1880 until the early 1900's), wage hands, and tenants or croppers. The great majority were Negro.

According to one school the hands on Smithonia "never saw the chickens except on Sunday." The rest of the week they were in the field before the cock crowed, and never returned until after the flock was on the roost.

The prisoners worked in squads of about a dozen each. Each squad was accompanied by an armed guard who also had a bevy of bloodhounds to cast on the trail of any escapees. The county prisoners, usually incarcerated for minor offenses, wore no fetters. (The local Grand Jury foreman is said to have adopted the attitude that there are only two kinds of people—the caught and the un-caught—and if the local constabulary went to all the trouble of catching a man, he must be guilty.) But the state convicts, whose crimes were of a more serious nature, wore leg irons and a chain which ran from the leg irons to a heavy belt around the waist. At night these shackles were secured to a long chain which ran the length of the barracks.

A number of individuals who were well acquainted with the plantation and its master, testify that Jim Smith was never cruel to any of his convicts. Further, it has been asserted that because of the expense of furnishing their complete subsistence plus guards in a day when free labor could be hired for as little as 50 cents a day, he never made any money out of them until

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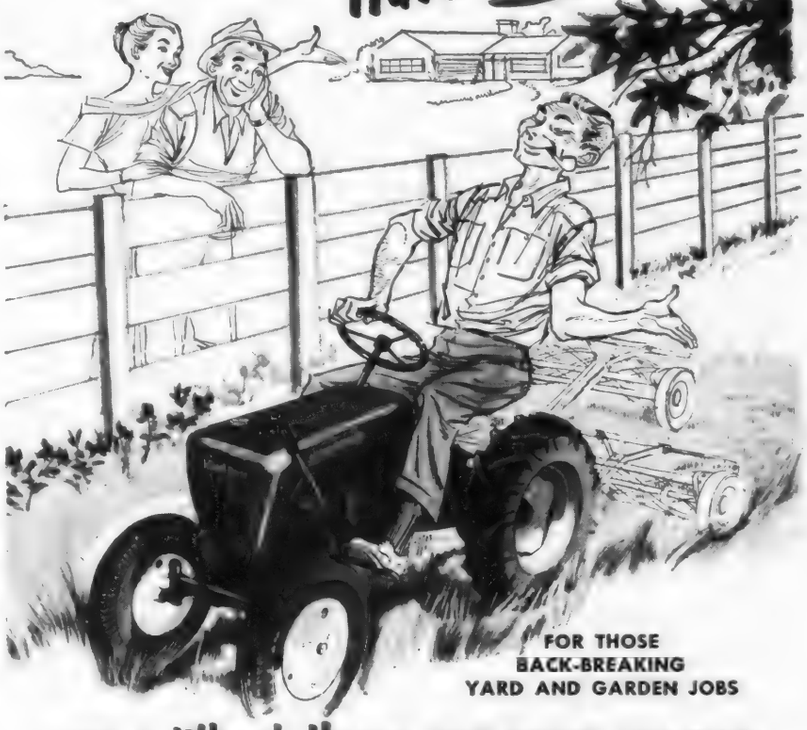

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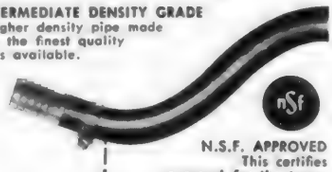

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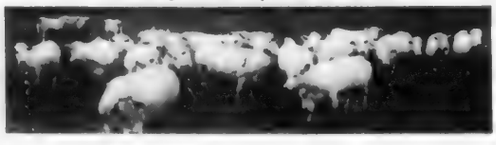

such time as he was able to sublease them to other contractors at as high a figure as $1 per day. The Colonel himself once observed, "Convict labor was in no way essential to my success—they enabled me to rush to my own injury."

Still, quite naturally, the most fantastic stories have grown up around this penal servitude. It is alleged the convicts were never whipped—until after supper, so as not to disturb the field work.

There is the story about the time the whippings were in progress down behind the buggy house. The victims were crying to the Lord for mercy until finally one pleaded, "Have mercy on me, Marsa Jim, have mercy on me!" "Let up on him, boys," Smith is alleged to have said, "He knows who to call on for help."

On the other hand there is the tale of the old Negro convict who just could not stand the rigorous field work. Colonel Jim is said to have called him aside one day and inquired about his health.

"You haven't been very well this spring, have you, Duke?" the Colonel asked.

"No, sir, I'se been kinda poorly."

"I'm going to cancel you off the rolls and let you go," said the Colonel. "Here's a suit of clothes and money to get you to Savannah. You go down there and change your name, and nobody will ever find you."

This night a fully clothed log was carried from one of the cots in the infirmary and buried in the plantation cemetery, and the simple notation "died" was inscribed beside Duke's name on the convict rolls.

Many of the Smithonia wage hands were bound by voluntary indenture for as long as five years. They were furnished board, lodging, clothes and washing and were paid wages of a stipulated amount on a specified day each year. The agreement further provided that they were to be taught a trade, usually farming.

But the indenture picture may have had its seamy side, too. Fleming Reid, who lived on Smithonia when he was a child and whose father and grandfather worked for Mr. Jim, recalls that the Colonel would give a family a place to live, allow them to get food and clothing, but "never no cash money, and there wasn't no way to get away but to run away, but Mr. Jim, he'd always ketch you.

"One time he stopped the Georgia Railroad train for 15 minutes while he searched the cars till he found a runaway hand. My Pa says it cost Mr. Jim $1,500 to stop that train—the railroad charge him $100 a minute—but Mr. Jim he ketch his hand, and he pay the money, and he say ain't no railroad going to carry off his hands.

"Then he take the hand back, and call everybody out and whip 'im. He have a strop wide as your hand fastened to a leetle short stick er wood, an' he grease the strop, and then his overseer, he draw the strop long through the sand and git sand stuck all on it, and then he beat his hand with that strop, and the sand make

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AURORA, ILLINOIS

it cut wuss. Hit was turrible. I seen it."

The rental terms for tenants and share croppers depended upon whether the man was able to furnish his own mules and fertilizer. Some land was rented for "standing rent," the tenant paying cash rent or its equivalent in pounds of cotton. If the tenant furnished his own mules and did not have to be "stood for," that is, if he could furnish his fertilizer and other necessities, he could get ⅔ of the cotton and ¾ of the corn. If he had to be furnished tools, fertilizer and living expenses, his share would range down to ⅓ or ¼.

All the hands had a good breakfast in the morning, and were taken to the fields on the train. There were about 12 miles of railroad on the plantation itself, radiating from the home place. The train would also bring out the noon meal. The flat cars would carry tubs of sidemeat, hampers of cornbread, barrels of soup, turnip greens and field peas, which the hands would scoop up in tin dippers.

Commenting on the Smith method of husbanding his labor supply, Harry Hodgson observed in 1905, "One sometimes sees 40 women and children flailing seed from amber cane when two men and a machine would do the work just as well in much less time. His wheat is cut with the old fashioned scythe and cradle instead of the modern reaper. The reason is that no machine has been invented that can successfully pick cotton so that an abundance of Negro laborers must be kept on hand to pick the crop. Colonel Smith employs old

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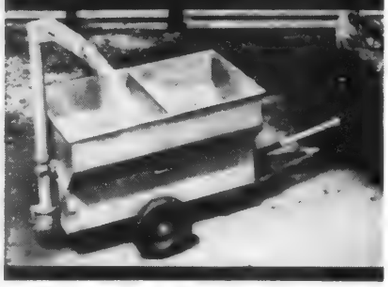

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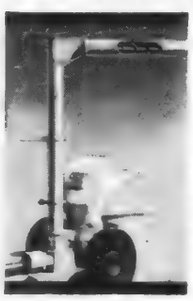

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fashioned methods to keep his laborers at hand for picking time. In the interim he must keep them busy."

It was Colonel Jim's theory that a farm should be run like an army, and he saw himself as the commander-in-chief. His office was in the front of the big house at one end of the long veranda. From there, or from a rocker on the veranda itself, he directed all activities.

He had a number of Negro boys who were his couriers and whom he could dispatch to any part of the plantation with messages for his foremen or to pick up reports on the progress of the work. He always had a little pad of paper at hand on which he could scribble an order to the commissary or an authorization for his bookkeeper to settle an account.

One of the strictest rules on the place was that all the foremen gather at the big house after supper each night to report on the day's work and map out plans for the morrow. Despite the fact he had over 500 mules and from 1500 to 2000 workers, he is said to have been able to identify every mule on the place, tell where he bought it and what he paid for it, and he knew every worker by name.

Judge Earle Norman, of Washington, Georgia, who was his secretary during the last three summers of the old man's life says, "I've never had such an experience before or since. I used to get up at 6 in the morning and get to work by 7. We'd never quit until 11, and then the old man would get me up in the middle of the night to talk about Napoleon and Lincoln. He'd be poppin' the questions and giving the answers right back. I never saw him read anything but a newspaper, but he certainly was well informed on everything.

"He had a prodigious memory; knew every person on the place by name and exactly how much cotton he picked. Without any prompting he'd walk up to a man in the field and say, 'Tom, you picked over two bales of cotton last week and only a bale and a half this week. You're falling down. What's the matter with you?'" Whenever Colonel Jim would go to the fields he would drive in a buggy with a crew of his Negro boys running ahead to open gates and carry messages. In his last years when infirmities were creeping up on him, he used to be followed by a wagon with a mattress in it on which he could lie down when tired. He is said to have topped a hill one day and looked down on a creek bottom where a big field of corn had been completely flooded out. This sad prospect immediately brought forth one of his theological observations. "The Lord may be good," he said, "and He may be just. But He doesn't know a thing about farming."

The Politician

No true son of Georgia can resist the lure of politics, and Jim Smith was a loyal son indeed. He served in the Georgia House of Representatives for a number of years, and had a term in the State Sen-

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ate. He was a delegate to the Democratic National Convention which nominated Grover Cleveland in 1892, was a Bryan elector in '96, and a delegate to the Democratic Convention of 1904.

But the one office he wanted—the governorship—was beyond his grasp. He made the race in 1906, seeking above all else to defeat Tom Watson's candidate. He realized his chances were slim in the free-for-all which marks a Georgian gubernatorial campaign, but he was resolved to beat Watson's man in Watson's home county, McDuffie, and concentrated his efforts therein. As the returns came in, the Colonel received a telegram from one of his lieutenants, "All lost but honor and McDuffie and that came damned high."

Actually, he carried two other counties beside McDuffie, his own county of Oglethorpe and adjacent Madison. His opponents claimed "he bought McDuffie, won Oglethorpe through fear and Madison through ignorance."

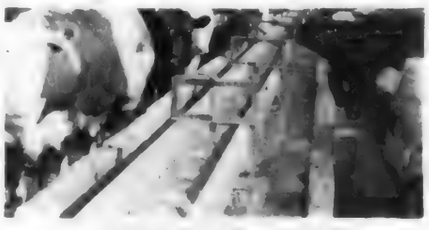
R. I. P.

On December 15, 1915, Jim Smith was standing before the fireplace in his office when he was suddenly siezed with a heart attack and toppled over. He was carried to his bed and died. While he had been in poor health for a number of years, his death was as unprepared for as the death of most men of affairs.

The court appointed temporary administrators to take over the management of the estate, and immediately the fight began. J. O. Mitchell, the old man's bookkeeper, knew there was a will, but it was a couple of years before he was able to find it. In the meantime Smiths from Corpus Christi to Chicago began to turn up with tender stories of their devotion to old Jim and claims on his fortune.

In all, more than 60 claimants got into the act. Eight tried to prove they were his illegitimate offspring, while others did not hesitate to allege he was the illegitimate son of their own mothers or aunts.

The female population of Habersham County, the scene of some of Jim Smith's most extensive trading and peddling activities in the early days, was most in jeopardy of its reputation. There were five deceased old maid sisters by the name of Smith in that county, each of whom was alleged to have born James Monroe ille-



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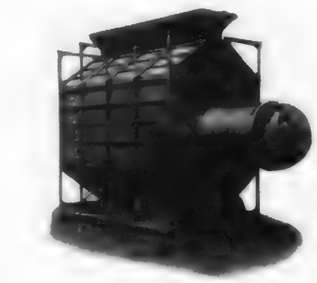

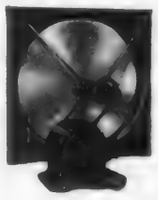

Hay, shelled or ear corn, small grain, peanuts, soy beans, tobacco . . . it makes no difference what crop you want to dry, Hartzell has the right equipment for the job.

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Hartzell's complete line of drying equipment includes portable dryers, batch drying bins and fans for natural air drying. And you can trust your Hartzell representative to recommend the right equipment, because no matter what your job calls for, he can supply it.

For complete details on Hartzell drying equipment which can increase the cash value of the crops you sell and the feed value of those you keep, just fill out and mail the coupon below.

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Please send me more information on ( ) Hartzell portable crop dryers ( ) Hartzell batch drying bins ( ) Hartzell fans for natural air drying.

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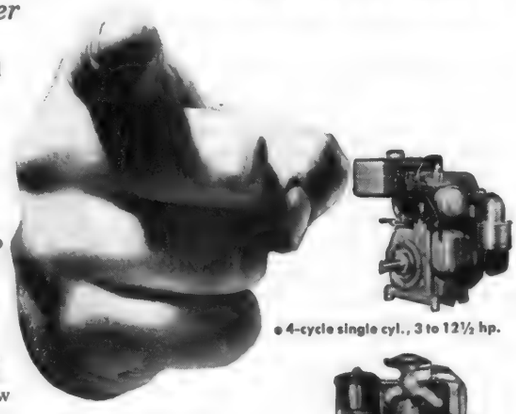
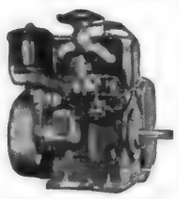
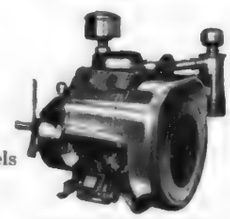


• 4-cycle single cyl., 3 to 12½ hp.



• 2-cylinder, 10 to 18 hp.



• V-type 4-cyl., 15 to 56 hp.

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2 HOG DRINKS (optional)

gitimately. In defense of the womanhood of Habershaw county the attorneys seeking the appointment of permanent administrators for the estate admonished the court that "in addition to the uniform rule of law, human charity would invoke opening the doors of the Court of Ordinary for the regular administration of the intestate's estate . . . and thereby save from the taint of cupidity and scandal the virtue and reputation of the other old maids, now dead, of that good old county."

"The toughest claim we had to refute," says Hamilton McWhorter, "was that of a girl from Ohio who was able to prove that she was the daughter of a James M. Smith who had filed a marriage license in Ohio in 1867, and had deserted his wife six months later.

"Her attorneys brought her down here and took her around so all the old timers could meet her. She completely captivated them, and had them all saying, 'She's the spittin' image of old Jim,' until we found a court record which proved that our Jim Smith was serving on a jury in Superior Court here in Oglethorpe County that same day in October when the wedding was supposed to have taken place."

Eventually the will was found. It left the bulk of the estate to Smith's nephews and nieces, the sons and daughters of his half brothers. The court determined that James Monroe Smith had only "one" father, "one" mother and "no" wife. But still the story was not finished. The legend had already grown up that the Jim Smith money was tainted. And so it seemed to be.

The entire plantation was liquidated, and Colonel Jim's prediction that "the day will come when buzzards will roost on this house and wagons will be parked on the lawn" was literally fulfilled. The daughter of one of Jim's nephews received the bulk of the residue, an amount estimated to have been around a million and a half dollars. Within eight years she and her husband were penniless, largely, it is said, because of reckless investments.

Even the fees received by the attorneys for the estate seemed to fall under the taint. One lawyer who received $65,000 for his services invested his fee in bank stock in the days when such stock carried the double liability provision. The bank folded, and another $65,000 followed the first down the drain.

The 2,000 acres of Beaver Dam Farm with the old house and the brick warehouses and commissary building converted into barns and granaries are all that remain of the home place on Smithonia. And on a knoll in the historic Oconee Hill Cemetery in Athens stands an Egyptian mausoleum with one occupant. Even here the legends persist, for it is said that if one leaves a coin on the edge of the grave it will be gone when he returns the next morning, appropriated by that Midas of the cotton fields who lies beneath the slab.

THE NEW U-BARN

(*Continued from page* 79)

Then came the fire. That was in July, 1957. The cattle were saved but the barn and all its contents, hay, grain, and machinery, went up in the flames and smoke while Adolph and his family, Mildred, his wife, and his sons, Duke and Eddie, watched. This was a real crisis. "We had just about been breaking even," Adolph says. "We didn't owe a dime. But after the fire I wished we'd had $50,000 of debt. We'd had to have insurance then. As it was we didn't have a penny of insurance."

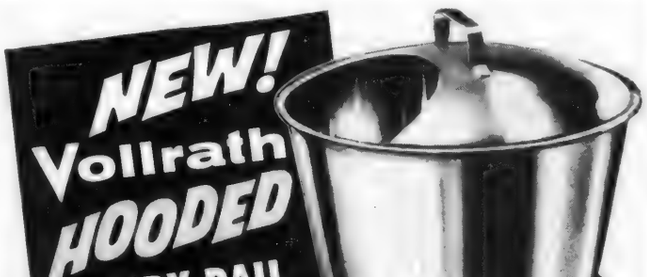
Well, Adolph and his older son, Duke, began to size up the future. "Duke and I decided the profit margin is so narrow we either had to produce more or get out. So, with the help of Russell Cary, our county agent, we decided to put in a complete loose housing arrangement with a herringbone milk parlor, a pipeline milker, and a bulk tank. Then our friend Ivan Bigalow, who used to work with us when he was at Cornell and who is now the agricultural representative of U.S. Steel, convinced us that pressure creosoted lumber and steel sheets would be the best materials to use.

"Doubling the size of our herd isn't going to help the surplus any, but as Duke said, 'we were hardly supporting our machinery before' and we had to get more out of it."

The rubble from the fire was bulldozed into a hollow behind the barn site. On August 19 last year the materials for the new barn arrived and by the 27th—just 8 days later—it was completed.

The complete layout is shown in detail in pictures and drawings on pages 76 through 79. It consists of the U-shaped arrangement with the open side to the west. Usually the open side is to the east to provide greater protection against the weather. In this case the lay of the land would not permit it.

The loafing barn on the north side of the U is 39 by 130 feet with its south side open along a paved 50-foot wide exercise yard. Allowing 60 square feet per cow, it can accommodate 80 cows. A covered feeding barn forms the south side of the U.



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MORE Questions farmers ask about

vitamin D nutrition

Q: Would more vitamin D help keep my good producing cows in the herd longer?

A: The exact requirements of dairy cows for vitamin D are not known. Research with radioactive materials indicates that the ability to absorb and utilize calcium decreases markedly as cows become older, also that the availability of calcium reserves decreases with age. Since vitamin D is needed for the efficient use of calcium and also of phosphorus, it would appear that more vitamin D (up to 6,000 to 8,000 units per pound of regular ration) plus adequate calcium and phosphorus may help cows to produce profitably longer.

Q: When feeding massive doses of vitamin D_2 for milk fever prevention, should all cows in my herd be included?

A: No. For efficient herd management, only those cows with a previous history of milk fever or mature cows in herds where the incidence is high should be fed the massive doses of 30,000,000 units of vitamin D_2 per day for 5 to 7 days before freshening.

Q: How much vitamin D should my calves be getting?

A: According to work at the Pennsylvania Experiment Station, a minimum would be 400 to 500 units for each 100 pounds of body weight. Better growth and better looking calves were obtained when an additional 2,000 units of vitamin D per 100 pounds of body weight were added. Customary levels of vitamin D fortification for calf meals usually range from 1,000 to 4,000 units per pound of feed.

Q: Is vitamin D needed for protection against stress factors in swine feeding?

A: Yes, indeed. Rapid growth, early weaning, large-scale feeding operations under dry-lot and confinement conditions all create nutritional stresses in growing pigs which must be met by more highly fortified feeds, including adequate vitamin D. Multiple farrowing, large litters, and thyroprotein feeding to stimulate milk flow are examples of stress factors in sows for which ample vitamin D is indicated.

Q: How much vitamin D should my growing pigs be getting?

A: Increased rate of growth, early weaning, and confinement rearing as practiced in modern swine management indicate a need for more vitamin D. Further studies on vitamin D requirements of pigs under these conditions are needed. Many nutrition authorities recommend the fortification of pig starters and growing – fattening rations at about 500 units per pound of complete ration with somewhat higher amounts for the early weaned pig.

H. C. Wallis

Have You a Question?

If you have questions about animal nutrition concerning vitamin D fortification or Milk Fever prevention, write to Dr. G. C. Wallis, Director of Nutrition, Agricultural Department, Standard Brands Incorporated, 625 Madison Ave., New York 22, N. Y.

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This consists of a box or bunker silo and a hay storage and feeding area. The silo is 26 by 130 by 8 feet high. It has a capacity of 676 tons of silage and can be self-fed from either end.

The milking parlor and milk room is at the bottom of the U on the east side of the layout. The parlor is a herringbone, 6 cows on each side. The milker is a Chore-Boy, 6-unit outfit, with a clean-in-place wash-up arrangement which holds the bacteria count to the minimum.

The Steinhorst 500-gallon bulk tank is cooled by a direct expansion type of cooler operated by a water-cooled compressor.

The loafing and feeding barns are of pole frame construction. The poles and splash planks and the lumber used in the box silo were all pressure treated with creosote at the rate of 8 pounds of creosote per cubic foot, a process which is the specialty of the American Creosoting Company. The siding and roofing is of 2½ inch corrugated 28-gauge galvanized steel.

Outside the milking parlor is a Martin steel grain bin. Dairy feed is delivered to this bin and augered from there to the stalls.

Engelbrecht's cost on this set-up, exclusive of the milking equipment, came to just about $30,000. Estimates on more conventional construction ran up to the $70,000 mark.

Rogers and Maine, the contractors who did the construction work, put the cost of pole barn construction in that area at about $1.10 to $1.25 per square foot.

The Chore-Boy milking outfit carries a price tag of about $4500.

Incidentally, as Duke points out, one of the essentials of a herringbone set-up is a door which works fast enough to prevent too many cows crowding into the parlor at one time. In this parlor they are operated by pressure off the vacuum line.

The feeding barn and exercise area are paved with blacktop laid over a 6-inch base of No. 3 stone. The blacktop was laid before the holes were dug for the poles. It is quicker and easier to drill through the blacktop than to pour the mix around the poles. Holes for the posts should be dug 20 to 22 inches in diameter to help in lining them up and to provide plenty of room for tamping.

There is no pavement under the loafing shed. Engelbrecht beds this area with 1½ feet of sawdust. When this is stirred daily with a cultivator on a spring tooth harrow, it will provide good bedding for months before it is necessary to add additional material. When necessary, Engelbrecht adds straw on top of the sawdust, distributing it with a manure spreader.

Milk from a Tin Can

Adolph confesses he took no particular pride in his new barn at first. "It's just a tin can," he says. "But it certainly helps get the job done quick."

He now has 62 cows in contrast to the 40 he formerly milked and is aiming for 80. Yet his milking and chore time per cow has been cut in half. "We used to start the morning milking at 4:30," he says. "Now we start at 6 and we're finished by 8. We don't have to carry feed or hay or silage to the cows. And we don't have to carry the milk away from them."

Adolph can point to some specific figures to show the way he worked his way up the time-saving ladder from a stanchion barn to a walk-through parlor with loose housing and finally the herringbone-loose housing arrangement.

With his stanchion barn one man used to milk up to 30 cows per hour using 2 or 3 milking machines. The walk-through parlor increased his capacity to 40 cows per hour, using 3 or 4 machines. With his new herringbone arrangement he can put the cows through the line at a rate of 60 per hour with 6 milking machines.

He makes the point, which is also endorsed by the Cornell experts, that while in comparison with stanchions the labor requirements are reduced by a milking parlor, the reduction in time is not too significant until one goes all the way to a herringbone arrangement.

Engelbrecht is also careful to point out that the mere introduction of a milking parlor does not increase production per cow. "It only helps you to handle more cows in the same time with less effort."

Loose-housing and self-feeding show tremendous time saving when compared to the stanchion set-up. The Engelbrechts cut the time for feeding hay from 2 hours a day to a half hour, and this with three times as many cows. Silage feeding they cut from 2 hours to 10 minutes and eliminated all the hand labor. The only labor involved here is scraping the feeding floor 2 to 3 times per week and moving the feeding gates. It used to take them a half hour to feed the grain ration at milking time. With the automatic system it takes about 15 seconds to feed six cows each time a new group comes into the parlor.

Bedding takes just as much time as formerly, but many more cows are being handled. Adolph notes that "we picked up the droppings twice a day last winter because it saved ten to twelve bales of straw a day. This took up to an hour longer but with straw at 40 cents a bale, $4 an hour is good pay."

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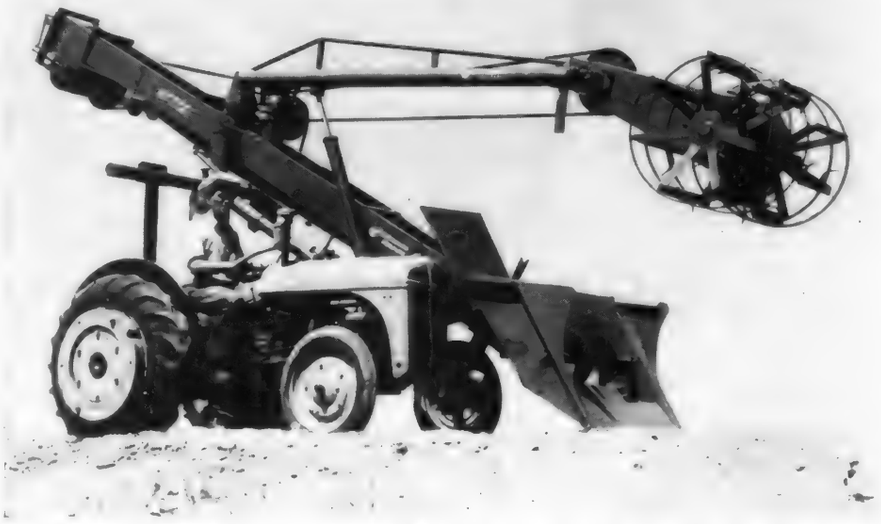

The ENSILOADER is the fastest, most efficient method ever devised for digging and loading in trench silos. The exclusive ENSILOADER reel quickly digs the silage and the conveyer belt rapidly delivers it to the feed box. The Model BEF, illustrated here, handles silage to a 15 feet depth and has the capacity to load 5 ton loads in 5 minutes. The BEF mounts on nearly any tractor. If you have 500 tons of ensilage you can afford the new, inexpensive model BEF. If you have 500 or 15,000 tons of ensilage we have an ENSILOADER to do the job.

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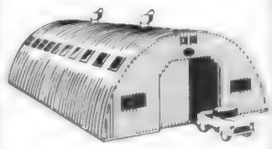

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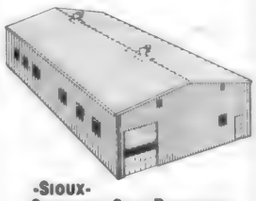

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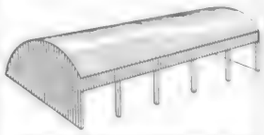

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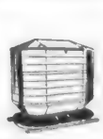

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THE SIOUX STEEL CO. MANUFACTURERS OF -SIOUX- STEEL PRODUCTS REG. U.S. PAT. OFF. SIOUX FALLS, S. D.

On the profit side, the new system has not been in operation long enough to document the gains. The gross has doubled though, and Adolph and Duke are quite happy with the increase in their milk checks.

"There's only one thing beats it," says Adolph. "My grandfather's set-up at $3 per cup."

THE DURABLE COYOTE

(*Continued from page* 42)

renovate dens dug by other animals. Pups are whelped in the spring. The mother suckles her litter until they are 4 to 6 weeks old. She feeds them by carrying small animals to the den in her mouth or by gorging herself and regurgitating the partly-digested contents of her stomach. She is more agile and can carry more for her young in her stomach than by carrying it in her mouth.

Coyotes rarely hunt in packs but occasionally they may team up on a wounded deer or a calf too large for a single coyote to tackle. Hunters have reported seeing coyotes run down an antelope in relays. Running in packs they are usually on a social tour.

Unlike the wolf, which may have a very wide range, a coyote will spend his life close to home, within ten miles or so if the hunting is good, not more than 25 miles when food is scarce. He is casual about his rounds, visiting his scent posts irregularly.

The average age of a coyote is probably 10 years, certainly not more than 15 years, about the same as the gray wolf. In captivity, under good care, they may live to be much older. It is border lore that a coyote never dies. "They live to be so old they turn into Mexicans," they say. This fancy probably arises from the fact that coyotes dead from natural causes are rarely found.

Coyotes seem to be particularly susceptible to rabies, and a mad one loose on the range is a nightmare for the ranchers. The rabid coyote has a nasty habit of moving into ranch premises as soon as his disease reaches the violent stage, attacking the ranch dogs and livestock. In the old days settlers nailed wire screen across the lower part of the windows to prevent them from entering. Ranch mothers threatened naughty children with mad coyotes.

His Menu

The coyote is cosmopolitan in his diet. No one has yet discovered anything he won't eat. While field mice and rabbits are his main staples, and watermelon high on his list of delicacies, he's not finicky. J. Frank Dobie, the western historian, who seems to know more about the coyote than anyone, lists the food and bric-a-brac that has been found in the stomachs of coyotes: pieces of string, paper and cloth, rubber from an automobile tire, harness buckles, snails, beetles, horned frogs, wildcat, housecat, skunk, armadillo, peccary, grizzly bear, all kinds of eggs, turkey, turtle, grasshoppers, crickets, all kinds of mice, rats and other rodents, wild berries, grapes, dates, peaches, prunes, carrots and peppers, tomatoes, plums, pumpkins, oranges, tangerines, bumble bees, flies, beaver, crayfish, any kind of fish in reach, bull snakes, rattlesnakes, all snakes, centipedes, apples, acorns, pears, figs, apricots, cherries, cantaloupe, porcupines, ants, other coyotes, water birds, and all sorts of land birds, including the buzzard, pine nuts, peanuts, grass, frogs, honey, pork, green corn, bread and butter, sugar and spice and everything nice, new or old, hot or cold, cooked or raw. Coyotes once put a pioneer railroad out of business by eating the rawhide plating off the wooden rails.

The friendship or affinity between the coyote and the badger is a part of Indian and frontier lore. This strangely assorted pair will often be seen hunting together, playing together. The coyote will sometimes use a badger hole for a den. In hunting, the coyote, being the smarter of the pair, will sit calmly by while the badger, a prodigious excavator, digs out and flushes a colony of mice. It is probable that the coyote is making a dupe out of the badger, but both no doubt realize some sort of satisfaction out of their association.

Coyotes cross readily with any breed of dog, although they are natural enemies. A female dog in heat has the same attraction for the male coyote as she has for the males of her own breed.

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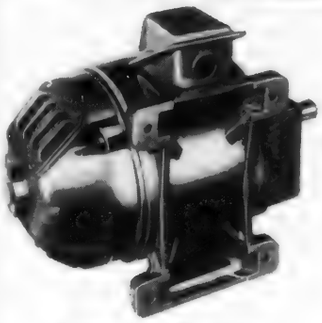
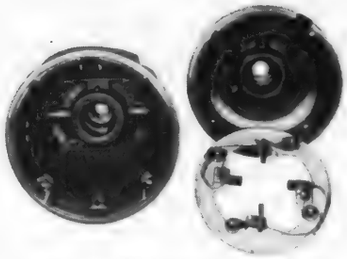
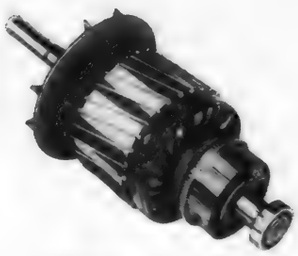


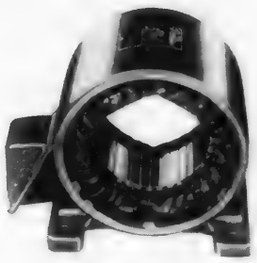
Openings in the motor are screened against rats and mice.



End hoods treated inside and outside to resist rust and corrosion. Screened against rats and mice. Aluminum, copper and stainless steel or bronze brushholder parts resist corrosion.



Ruggedly constructed armature is dynamically balanced. No short circuiting mechanism.



Rugged cast-iron shell is painted inside and outside. Windings treated to resist moisture.

REPULSION-INDUCTION: operates at extremely low voltages without motor harm. No short circuiting mechanism. Brushholder parts of aluminum, copper, stainless or bronze resist corrosion. Built-in manual reset thermal overload protector prevents burnouts. Treated windings, hoods and shells resist corrosion and moisture. Screened against rodents. BEST USES: silo unloaders, barn cleaners, milking machines, feed grinders, ensilage cutters, elevators and conveyors.

CAPACITOR: for continuous duty. Few parts to cause trouble. Treated cast-iron shell and end hoods resist rust and corrosion. Windings treated against moisture. Completely screened against vermin. Heavy-duty, double-contact starting switch. Capacitor in terminal box for easy replacement. BEST USES: ventilating fans, crop dryers, grain and hay blowers, pumps, conveyors and refrigeration compressors.

For further information write for Farm Motor Bulletin

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The result of a coyote-dog cross is rarely satisfactory as a house pet, chiefly because a coyote or any fraction of a coyote distrusts the human race. Even when taken as pups and raised like dogs, they never become completely at ease in domestic life.

The Prairie Minstrel

No one has ever been able to describe the coyote's howl, or song, that wild and dark, and elemental cry. It has much of sadness about it, as though the centuries of persecution were remembered and mourned. It has been described as the saddest, the most beautiful, and most triumphant sound in nature.

The coyote achieves a ventriloqual quality in his song which puzzles the listener. Even the initiated have trouble gauging the distance and direction. The Indians say the coyote sings into a badger hole or howls into a brother's tail. An old hunter tells of seeing a coyote place his jaw on the ground, and with his paw in his mouth, produce a kind of rhythm to his aria.

The usual pattern is a series of short yipes terminated by a long, sustained high note, but it just as well may be the opposite. There is little doubt that coyotes organize choirs, which convene at a favorite rendezvous for a concert.

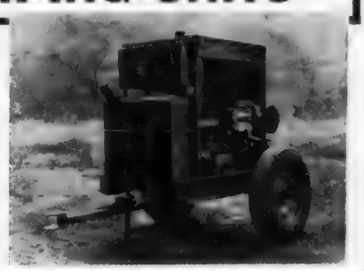
One coyote sounds like a pack and two coyotes sound like a dozen packs. More remarkably, a pack may sound like one animal, for each awaits his turn, taking up instantly where the other leaves off.

For Your Irrigation

Insist on HALE PUMPING UNITS

For more work at less cost . . . for extra gallonage, long grueling hours of operation, and dependable, trouble-free service, you'll find the HALE type PIR (trailer or skid mounted) to be the smartest investment you can make. Pumps 500 GPM at 120 PSI; 850 at 75 PSI. Other units range from the CIRV (1500 GPM at 75 PSI) to the new improved FZ or new Hale "TORRENT," suitable for low cost irrigation of small acreage.

NEW and designed to give you greater benefit from your tractor as well as dependable irrigation for medium-sized acreage, the HALE 3 PTF "Tractor-Mate" offers a wide range of volume and pressure. It is compact, efficient, and economical to operate—features a case hardened steel gear drive of the same high quality as on your local fire engine. 2 models available. 3" suction. With 550 RPM take-off speed, it will pump 350 GPM at 80 PSI.



HALE Irrigation Pumping Units are sold thru Distributors who are well qualified to engineer a system best suited to YOUR needs.

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HALE FIRE PUMP CO
CONSHOHOCKEN, PA.

Old plainsmen say the voice of a coyote will not echo. This was a handy thing to know, they said, because Indians often used the coyote howl for a signal. This imitation produced a warning echo.

The coyote lives on field mice and rabbits and this, in a sense, has been his salvation in the cattle and sheep country. An average coyote will save a rancher $11 in grass by removal of rabbits, and eat 1,000 mice, which do at least one cent each in damage. This sets a value on the coyote, as a pest control, at $21 each year. The coyote is the best practical control for mice, rats and rabbits and for this reason ranchers welcome his presence as long as he behaves himself. However, he cannot resist a lamb or a new-born calf when one comes his way and he is particularly fond of poultry. This, too, the rancher can tol-

Turn poor crops like this...

Into profit crops like this...

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Depend on Deming irrigation pumps for water when crops need it most. Efficient irrigation protects your farm against the hazards of drought and crop loss.

Irrigation costs you less with Deming Vertical Turbine or Centrifugal Pumps. Precise engineering and sturdy construction of Deming Pumps assure long, trouble-free life with minimum operating cost and maintenance. Deming's complete pump line includes the right size and capacity to meet your individual irrigation requirements.

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erate within a limit. When a coyote becomes a confirmed killer of poultry and livestock, his extermination becomes a must.

The coyote's place in the scheme of things is well illustrated by a story Mr. Dobie tells of George West, a Texas rancher.

Cattle people, Mr. Dobie relates, are generally conservative in the manner of old-time English squires. The King Ranch may import bull snakes to swallow rattlesnakes and hire a biologist to ration the diet between skunks and armadillos, but lots of the ranchers—including some of the oil millionaires who sink their excess profits in land and live in Houston with their income tax lawyers—tend toward the George West point of view. On his big ranch in Live Oak County, Mr. West always had big steers and plenty of deer, and he never arranged hunting parties in order to influence politicians. One time an eager young man met him in San Antonio.

"Mr. West," he said, "you wouldn't mind if I went down to your ranch for a little deer hunt, would you?"

"Oh," Mr. West said, "you can't see any deer down there nowadays for the brush. People shoot at a deer in the brush and scare my steers and the steers run the tallow off themselves. No, I can't let you hunt deer."

"But, Mr. West," the young man went on, "I just want to get out on your famous ranch. I won't shoot at the deer. I'll shoot the coyotes."

"No," said Mr. West, "I've got to protect the coyotes to keep the jack rabbits down. If those jack rabbits were left alone to breed, they'd eat up all the grass."

"Well, the young man brightened, "I'll just shoot jack rabbits. That would be fine sport and useful too."

"No," Mr. West replied gravely, "we've got to have the jack rabbits to feed the coyotes."

The young man by now had lost his eager look.

"Maybe you've heard of the balance of nature," Mr. West concluded.

EDITOR'S NOTE: We are indebted to Little Brown & Company for permission to reprint excerpts from the charming book, "The Voice of the Coyote", by J. Frank Dobie.

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BRUSHCUTTER

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Powerful, Economical 5 h.p. Engine

WEED BLADE
Easy-to-use rotary-type weed cutter cuts close to ground, on hillsides, fence rows, rocky terrain — anywhere you can walk.

The Hoffco HD Brushcutter is perfect for farm use. With it **one man can do the work of five men using old-fashioned hand tools.** It's sturdy, practical, professional-type equipment used and preferred by foresters, highway departments, tree surgeons and engineers for their most complicated "problem" clearing. It's fast . . . efficient . . . easy to handle. Perfectly balanced—no strain on operator. Hoffco originated this type of equipment and Hoffco is still first in the field.

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Levels flush to ground all grass, brush, brambles and trees up to 5" in diameter and over. Ideal for dense "problem" clearing. Powerful 10" circular blade.

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(*Continued from page* 38)

piece of equipment in this isolated spot. The farm machinery is heavy on the haymaking side—two mowers, two rakes, wagons, a baler, plow, disk, and a big Allis-Chalmers tractor with a fitted track for the snow and the boggy meadows. The Mercers brought three horses and two mules with them from the States, and quite useful they are—gasoline is 53 cents a gallon. One of the mules took sick last winter and died. The other four animals are in good shape. Their two milk cows are Shorthorn-Scotch Highland crosses, good for both milk and beef.

Phone but No School

They have a telephone—a call from Nebraska reaches them in minutes—and electricity from a home generator sufficient for light, appliances, and a washing machine. Fuel for heating and cooking is wood or coal, which is quite cheap there. Radio reception from Alaska stations is good. The Mercers have no TV.

The nearest neighbor is about a mile away at Lignite, a whistle stop on the Fairbanks-Anchorage railway, where there are a few families. Healy, two miles away over a dirt road, is the metropolis of the area, 200 souls support a church, a movie, and a general store where one can buy most everything that can be carried away in a shopping bag. There is no school. The Mercers plan to tutor their own children, now five, three and two, with the aid of a correspondence course.

"One of the blessings of statehood, we hope, will be convenient schools," said Mrs. Mercer. "Neither one of us knows much about teaching and I don't know how we could find the time. We'll just have to cross that bridge when we come to it."

During their first year the cash sometimes ran thin, but they squeeked through. Berle explained, "We didn't want to go heavier in debt, so Claire went into Fairbanks and got a Civil Service job. She came home on weekends and kept me and the boys in line. We couldn't have come through that winter without her salary."

Claire rode the 350-mile round trip on the government-owned, single-track Alaskan Railroad. On Monday mornings at 5:10 she flagged the train with a lantern at Lignite. Then she sat in an old coach, ignoring the too-expensive dining car, until reaching the end of the line and her secretarial job.

With the snow thrown up in high banks along the track, the trip could be delayed, very often because a bull moose would prefer the packed snow between the rails to the drifts on either side where he was easy game for the wolves. For 10 to 15 miles the moose would run ahead of the train until, exasperated, he would turn, lower his head, paw the ground, and charge. Two thousand pounds of moose would jolt the train, halted by the wary engineer. The bull would rebound, eyes glazed, and fall in his tracks with a broken neck. The Indian crew would then emerge, bleed him, and hoist the fresh meat into the baggage car.

The Mercers have a kitchen garden which supplies them with fine vegetables during the season. "You plant a seed up here," says Berle, "and it pops out of the ground; you can almost see it growing." Cabbage, beans, lettuce and such, mature in half the time it takes in the States, due to the long daylight and the abundant

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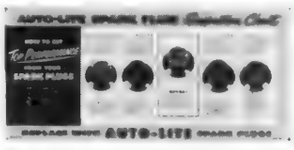

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moisture and fertile soil. There are from 85 to 100 frost-free days and one can read a newspaper at midnight during two months of this period.

Recreation for the Mercers is largely home-made—a rare movie in Healy, a picnic along a mountain stream. Hunting and fishing are of the kind sportsmen dream about. "Trout fishing is so good you don't have to lie about it," says Berle. "We have plenty of deer and bear and you can always get a grouse or ptarmigan a few steps away from the house."

There is a bug in the ointment. "This would be the perfect place, for me, if it weren't for the mosquitoes," Berle said. "The first year we were here we couldn't go outside without a head net and gloves from early spring to summer. They came in black clouds and were big and bloodthirsty. We were all a mass of bumps. This year they haven't been so bad. The children played outside in shorts and weren't bothered much."

At times mosquitoes are a menace to livestock. "Cattle won't graze when they're fighting mosquitoes," says Berle, "and after a while they accumulate so much poison they lose weight. I've had to carry a switch to drive them away from my horse's face—they would choke him if I didn't. One reason the Highlanders fared better than the other cattle was their long hair gave them pretty good protection against mosquitoes as well as the cold."

The Long Night

The problem of combating the sub-zero temperatures was not as great as the Mercers had anticipated—a Nebraska winter is not picnic weather. "Forty degrees below zero isn't so bad if you know how to dress for it," Berle said. "You get used to it after a while. You don't dare stick your tongue out and you've got to be careful about your ears and feet and hands. And almost everybody up here comes out of the winter with a peeling nose from frostbite.

"The cattle, if they have a windbreak, do very well. We had a case or two of frozen hocks among the cross breeds, but the Highlanders know how to protect themselves. They were better off than we were in the water department—we often had to melt ice, but the Highlanders ate snow.

"One forty-below-zero day last winter I had my feet in front of the red-hot stove and felt pretty good. I said to Claire, 'I don't know which you would rather have, but I prefer this to a Nebaska summer.' She agreed with me."

Mercer carries a rifle in a saddle holster wherever he rides. "You never know when you'll find an injured or sick animal you have to finish off. If you should get hurt yourself, or lose your horse a rifle is the best thing to have with you. And I'm always on the lookout for predators—they may not harm me but the less of them the less danger to livestock, especially the calves I hope we'll soon be having."

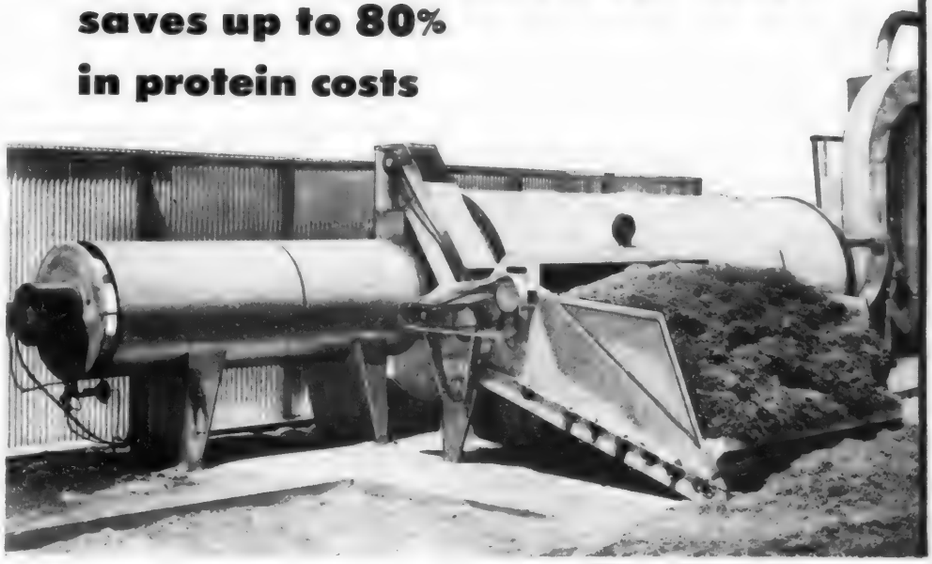
"We think we've licked the two big problems, the winter darkness and the isolation, of living in Alaska," Berle says. "We don't see the sun for five weeks in winter—it never even peeps over the mountains to the south. During the darkness we take all the time we can doing the chores, we read a good deal, listen to the radio, write long letters home.

"I don't mind the isolation—a Nebraska ranch seasons you to that. But Claire, who worked in a busy office before we were married, might have had a few bad months if she'd had time to think about it. This would be a sad place if you didn't like the people around you. We all love each other here and while we're isolated, we've never been lonely. We do miss our kin and we miss most of all neighbors with similar interests. I would like to talk over common problems with neighbors—that would be helpful because we've had no experience to follow here."

The Last Frontier

Mercer will have 20 years, the term of his lease, to round out his experiment. He is required to run 50 cattle the first year of the lease, 150 the third year, and 500 the fifth year. Lease costs are reasonable—the first three years will cost him a total of $400; after that, 60 cents per animal unit per year. He can grow anything, but he cannot sell anything off the land except as beef. A recent law revises the homestead regulations—no homesteads can

HEIL-DEHYDRATED HAY
saves up to 80% in protein costs



Records show that you can save up to 80 percent of protein supplement cost by feeding dehydrated alfalfa made into pellets.

Using a Heil dehydrator to dry chopped hay before pelleting preserves nutrients that are often leached out of the hay by wet weather. Fed to livestock, these pellets take the place of protein supplement. Beef cattle show substantial increases in gain and dairy cows show production increases up to 15 percent.

A flash of hot air from a Heil dehydrator preserves alfalfa or other forage ... fixes quality at the peak of nutritive value ... puts crop in best condition for pelleting. In addition, dehydrating adds about 10 percent to the yield per acre. You save all the crop — leaf shattering and weather losses are prevented—and an extra cutting is usually possible. You can make hay every day ... even when it's drizzling.

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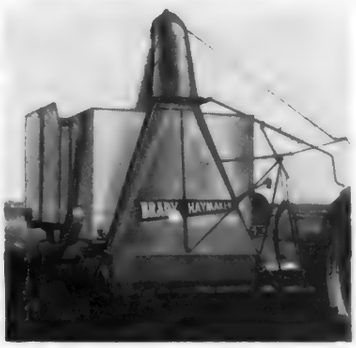

Get Better beef gains — greater milk production. Fresh forage feed cows and steers in loafing pasture or feed lots. Chops green feed, silage, dry hay, and stalks for bedding. Pulverizes prunings and tops vegetable crops. Handles the heaviest load with ease. Before you buy any chopper investigate the rugged, fully field-proved, low-cost BRADY.

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BOX 1456, DES MOINES, IOWA

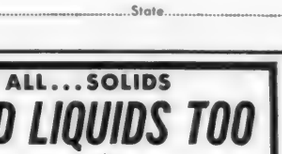
be taken out on leased land. He cannot purchase land within the lease, and cannot homestead himself.

Though he plans to vote "yes" on Alaska entering the Union, Mercer does not believe that statehood is an unmixed blessing. "While we'll probably get better roads, better schools, and a few more miners and oil men to eat our beef, I don't believe there will be a great rush of homesteaders. Alaska was not quite ready for statehood. The big rush will be for political jobs. We'll have a lot of amateur politicians messing up things."

Alaska produces only about 5 per cent of the food it consumes. In that field lies the big opportunity, but climate is the limiting factor. Those who know say that only in beef can the state be self-sustaining. That is why Berle Mercer should be judged as a wise and far-sighted farmer, willing to risk the hardships of a pioneer life to prove that there is a good living to be made in cattle in Alaska.

From his own experience he has a bit of advice to pass along to the young fellow with notions of pioneering in the new state—"Don't burn your bridges behind you. Go to Alaska, look around, and make a trial spin, but keep a foothold back home. I like Alaska; it's a great place, but it's not for everybody."

GET IT ALL ... SOLIDS AND LIQUIDS TOO WITH A Louden TRANSFER-TYPE BARN CLEANER



Gutter chain travels at 14 ft. per minute. Stays in gutters at all times. Solids and liquids are transferred to elevator hopper. Elevator paddles sweep through hopper, carry litter up elevator at 55 ft. per minute. Fast enough to get both solids and liquids with no run back. Litter is deposited in spreader.

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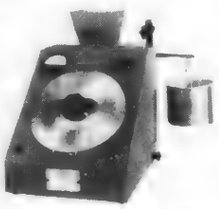

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CORN SHELLERS HAMMER-MILLS FEED MIXERS

MOISTURE TESTING

(*Continued from page* 59)

checked against an elevator tester at least once a year, and the tests should be made side by side, at the same time, with identical samples and under the same conditions.

Farm moisture testers are of three types, according to the method used. In the distillation method, the moisture is distilled off by heat, then is re-collected and measured. The infra-red heat method operates like a laboratory oven tester, with a sample of grain being weighed, the moisture driven off by heat, and the sample re-weighed, the difference in weights being the moisture. In the electronic method, an electric current is passed through the grain; conductance of the current varies with the amount of moisture present in the sample in one kind of electric tester, while in another kind, moisture content is measured by capacitance.

Distillation Type: There are two testers of this type, the one priced around $40, the other about $85, both for plug-in electricity. With each, a test takes 20 to 30 minutes. One, an old-style "cooker," is very accurate, but must be watched carefully. With the other, designed for farm use, a sample is weighed on a scale provided, then placed in a small can of chemical. After heating, the moisture content is read on a scale. Cans of the chemical, one for every test, cost about 20 cents each. The distillation type testers are: Accurate and Brown-Duvel.

Heat or Infra-Red Type: Most of these are portable, with the heat being supplied by a plug-in infra-red lamp. With the majority of these, a scale is provided, some scales being built in. The lower priced models have to be turned off at a specified time. The more expensive kinds have automatic heat shut-off and so need not be watched. One brand is almost completely automatic after a sample is placed in the machine. The weight-loss, from which the moisture content is calculated, is recorded on a counter and retained until reset. A test can be completed in a few minutes. Testers of the infra-red type are: American Moisture Tester, Cenco Infra-Red, Humidity Infra-Red, I.R. Moisture-matic Balance, and LBK Moisture Tester.

Electronic Type: Some of these operate on batteries, others on house current, several on either. A test takes about one minute with the majority of the devices. A few of the testers come provided with a probe for testing hay as well as grain. Some are built into a carrying case for field operation. Details of operation vary considerably. Either weighing or measuring is required in most of the tests, though one or two of the instruments eliminate this step. In several instances, moisture content is read directly on a dial; in other cases, charts for reference are furnished. At least one of the models gives high accuracy with blended grains; another will give an accurate indication of internal moisture regardless of dew or other ex-

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Koppers pressure-treated poles make all types of pole-frame structures easy to build and cut construction costs up to 50% and more. Because Koppers poles and lumber have chemical preservatives forced deep into wood cells, they give long years of rot-free and termite-free service with practically no maintenance.

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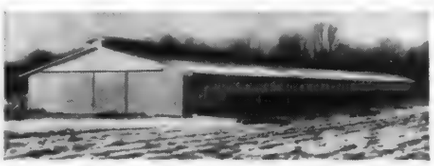
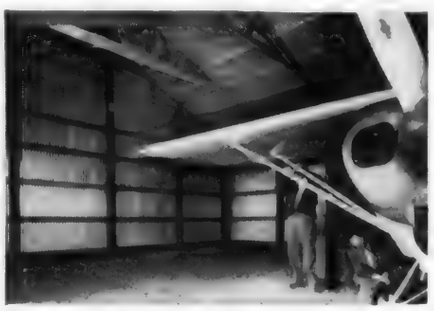


POULTRY HOUSES with built-in labor saving features are a "natural" for pole-type construction. Can be heated and insulated. Rot, termites, rodents can't cause damage.



PLANE HANGARS are other examples of the versatile and functional buildings which may be economically erected on ranch and farm using Koppers treated poles and lumber.

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765 Koppers Bldg.,
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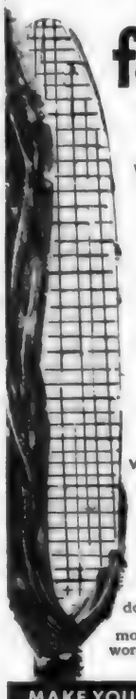
KOPPERS **KOPPERS POLES**

ternal moisture on the sample. Prices start at $37 through a range of $100 to $150 for typical farm-use models, up to $500 for continual-use, commercial types. Factory-rebuilt models of the more expensive types can be purchased for less than one-third of their new cost. A list of these are: Behlen Moisture Meter, Buckeye Moisture Register, C.A.E. Halross Moisture Meter, Christie High Frequency Desiccator, Delmhorst Moisture Detector, Gann Hydromat, Hart Moisture Meter, Hygrotester, Krop Kare Moisture Tester, Marconi Moisture Meter, Moisture Register, Radson Moisture Meter, Burrows Safe Crop Moisture Tester, Shafer Portable Moisture Tester, Steinlite Moisture Tester, Universal Electroprobe, Universal Moisture Meter, Weston Dielectric Moisture Meter, and Weston Grain Moisture Meter (formerly the Tag-Heppenstall).

Miscellaneous Type: These operate on chemical reaction or other principles. Few of them are designed for farm use. Some of them are: Aquameter, Brabender Semi-Automatic Moisture Meter, Carter-Simon Moisture Meter, Koster Moisture Meter, Moisture Register, National "15 Minute" Moisture Oven, Olivo Moisture Meter, Speedy Moisture Meter, and Wheat Belt Moisture Tester.

EDITOR'S NOTE: This is only a partial list. Addresses of manufacturers of moisture testers are available from The Farm Quarterly, 22 East 12th St., Cincinnati 10, Ohio.



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LITTLE DAMS STOP BIG FLOODS

(*Continued from page* 70)

have prior rights to the water and if it is true the big dams are essential to flood control the justification of the upstream programs is seriously weakened.

Technically the suit has been instituted under an old Oklahoma statute passed in 1905, before statehood. The Oklahoma water laws are in a confused condition that makes little sense to those concerned and even less to outsiders. A definite clarification of the citizens' water rights will be a real step forward. But a decision which would cripple the development of more projects like the one on Sandstone Creek would be a disaster. The attitude of the farmers and ranchers seems to be summed up in the remark of Harry Reed: "We don't mind the Bureau of Reclamation taking our flood water, just so they let our natural supply alone."

And what is that natural supply? Rugged, soft spoken Jess DeWees, the chairman of the Upper Washita Soil Conservation District, and the elder statesman of the area can answer that. Jess has all the solid, quiet character of the hills themselves. He has lived in that country since it was first opened to the white settlers early in the 1890's. His father was building fence for the big XIT Ranch around Dalharst in the Texas Panhandle at that time. Homestead land attracted him to Oklahoma. "And," says Jess, "when we came here there were no floods. The grass stood up as high as your chin and the holes in these creeks were always deep and clear. I fished and went swimming in just about all of them. It's just now getting back to that condition.

"It was the homesteading that did the damage. You had to plow 40 acres on every 160. Most of it was land that never should have been plowed at all. Then as the family grew and crops got poorer we plowed more and more and there was nothing to hold the rain on the land when it fell and we had floods and after the floods drouth. It's no more natural for these streams to run dry than it is for them to flood.

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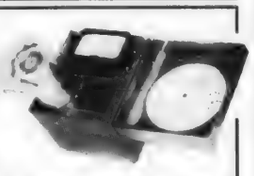

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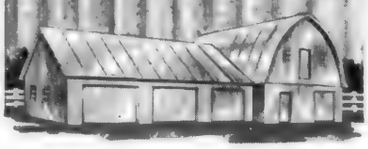

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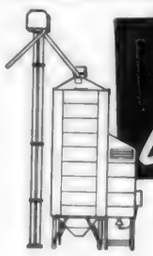

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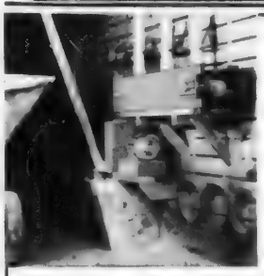

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Set automatic timer and do other work. Control shuts mill off if bins run empty. Grain and supplements proportioned accurately and air blend mixed. Ideal for grinding for hogs, dairy cattle, beef cattle and all poultry. Above pictured installation averages 2300 pounds per hour of complete hog ration. Blenders sold separately to fit any mill, operates with 1/3 horsepower motor. Mill is 2 horsepower, dust-tight, fan-cooled for long life. Let us help you with your feed problems—write for literature.

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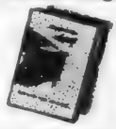

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TOWN.....STATE.....

LIQUID MANURE HANDLING

(*Continued from page* 41)

the same way again. The answer is, no. This is a new idea and they were bound to have second guesses. Instead of seven separate cisterns, they would put in one big one. It, too, would be circular to prevent the breaking in of the sides—a thing that happens with square cisterns when the ground freezes and heaves. "I think we'd change our pumping system, too," Harper said. "Instead of using the pump on the truck, we would put in an auger and run the stuff out of the pit and into the truck that way. An auger would handle the solids much better than the diaphragm pump and would get the liquid out just as well. The main thing is that we would leave the auger in permanently and do away with the nasty job of pulling the manure-wet hose out of the pit each time we loaded the truck."

Other Farmers Have Other Answers

The problem of solids settling out in the tank truck was solved in another way by Norris Farms, which have a confined hog system in the Illinois River bottoms. Here the pump does all the work. The tank truck used by Norris Farms is very similar to Harper's. A diaphragm pump has been mounted in front of the tank. This pump moves the liquid into the tank wagon.

By changing the settings the liquid can be either circulated by the pump or discharged through a distributing pipe for spreading on the field. The manager of the Norris hog operation says, "The thing we like about this arrangement is that there are only a minimum number of working parts to go bad. Also, when fields are too soft we can get the job done by driving down the lane and spreading along the edge of the field." They do this with a distributing pipe which extends from the side of the tank.

Still in Early Stages

Little is actually known from experience about liquid manure handling here in America. Most developments so far have been on a trial and error basis.

STORING GRAIN? LOTS or Little!

This Booklet Can Give You VALUABLE INFORMATION

It Contains:

★ The Reason and Economics of Drying-In-Storage
★ A Clear System for Equipment Selection
★ Tables for "Space Saver Bin Filling"
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Write for this new booklet. It can help bring you up to date on grain conditioning and how to achieve drying-in-storage most effectively.

DRY-O-MATION is drying-in-storage with natural air *automatically controlled* to constant humidity with supplemental heat. *It makes the step from field to storage bin one continuous process.* DRY-O-MATION assures uniform conditioning of *every* layer of grain in *every* part of the bin. Less shrinkage; no over-drying. With DRY-O-MATION you can harvest your grain when conditions are best for harvesting . . . condition it in storage . . . and market it when market conditions are best for you. *DRY-O-MATION with Farm Fans equipment is standard with many of the leading manufacturers of storage bins.* Insist on it when you buy.

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NATURAL DRYING

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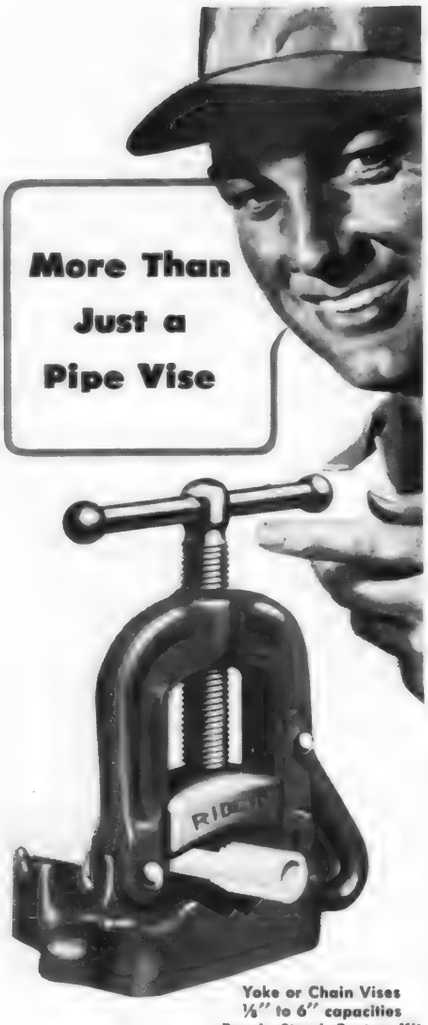

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Farms in England, Denmark and other European countries have been using the liquid system for years. Their prime interest is saving all the urine and manure and reducing nutrient losses as much as possible so it can be applied to cropland.

However, manure is just an aggravating problem in the minds of some U. S. farmers. Bud Tanton, who lives a few miles north of the Harper farm in Illinois, comments that if facilities were available he would prefer to run the manure down a drain and forget about it. "Bagged fertilizer can be bought cheaper than I can spend time handling and hauling hog manure to the field," he said. "The only thing I wouldn't be getting would be the organic material, which I could supply by plowing under green manure crops."

Other farmers prefer to spend time and effort in getting manure on the field. Jay Miller in south central Indiana says he can really tell where he has spread liquid manure. "There's no point in letting the manure go to waste when it can make such a big difference in crops and yields."

Irrigating with Liquid Manure

Chester Whitmore, near Salida, California, has an extensive liquid manure handling set-up for his 125-cow dairy, and says it is working well for him. Rather than haul the manure to the field for spreading, Whitmore mixes it with irrigation water and pumps it onto 40 acres of alfalfa.

Each day he flushes all paved areas where manure is deposited. The liquid flows into a holding tank where it stays until he is ready to run it through the irrigation system. If the manure is then too thick, he adds water. A 5-horse electric pump lifts the liquid from the pit into a standpipe that is 10 feet tall and 24 inches in diameter. This builds up enough pressure to force the liquid to the highest irrigation point in the field where it can flow over the whole 40 acres.

He can also pump it into a tank trailer and haul it to the field if necessary. "Anyone putting in a system such as this should remember the importance of agitation," Whitmore said. "A great deal of water and motion is required to move out the large amount of solids dropped by 125 head of dairy cattle in a day's time."

Frank Steiner, a dairyman near Vacaville, California, says he prefers distributing the manure by tank-trailer. By using this arrangement he can make heavier applications where needed. However, during times when fields are too wet to drive on, the liquid manure is run through the gated-pipe irrigation system if it is necessary to drain the cistern. Thus the manure can be distributed when it would be impossible to do it with the tank-trailer.

John B. Dobie of the California Agricultural Experiment Station points out that when liquid manure is distributed through the irrigation system, care should be taken not to clog the irrigation pipes. Whitmore dilutes his manure by mixing 1 part manure with 10 parts of water as it

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New Model 60G **M-C Chopper and Hay Conditioner**
The One Machine that Does ALL these Jobs:
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THIS MACHINE CHOPS AND LOADS! Chops green feed, silage, dry hay, and stalks for bedding. The new 60-G handles the heaviest or the lightest crop . . . with less power!

THIS MACHINE HAY CONDITIONS! The New 60-G Chopper *and* Hay Conditioner follows right behind mower. It crimps and aerates for quick field drying!

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Crystal Lake, Illinois

enters the system. Other farmers prefer to flush the irrigation lines with water every two or three days to remove solids. The farmers mentioned all use gated-pipe irrigation systems. It is possible to run the liquid through a sprinkler system; the sprinklers should be removed, however.

No one has the final answer on using liquid manure in the irrigation system. For that matter, no one has the final word on the best method of handling liquid manure. It is too new with us in America.

If Europe has used the liquid manure system for generations, why don't we pick up the answers to all the questions there? We could, but would we follow the lead? What American farmer would pattern his system after that of the Gyb Stubbin Farm at Tong in Yorkshire, England? Here, the liquid manure drains into a pit, is hand-pumped into a huge barrel on wheels, horse-pulled to the field, and spread by knocking out the bung. The answer, of course, is that no American farmer would take this laborious path. Neither will many modern European farmers. They are turning to the mechanized handling of liquid manure. And they are feeling their way into it by trial and error just as Harper and Sauder and other American farmers are doing.

THE AUTHOR: Gerald L. Wilkins was born and raised in Indiana and graduated from Purdue University with a B.S. in agriculture. While in college he was managing editor of the student farm publication, "Agriculturalist." He is now Assistant Corn Belt Editor of the Doane Agricultural Digest.

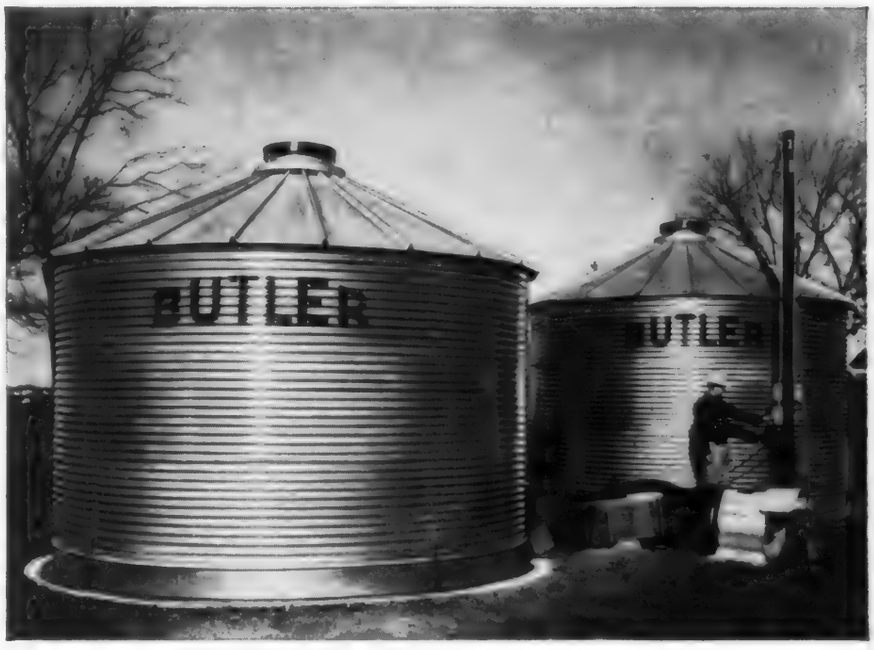
13 TIPS FOR PICK AND SHELL

(*Continued from page* 58)

twins by several minutes, said, "We get a moisture test at the mill before we begin. Later we can tell if the moisture is about right by the way the corn rattles on the tin of the tank and the way it slides down into the wagon box. For air-tight storage, we like the corn to average out 28 per cent moisture. By starting to combine at 30 per cent, we can get enough corn shelled to fill the silos before any of the corn drops to 26 per cent in a normal season. Last year wasn't normal. A lot of our corn held at 30 per cent for quite a while, then dropped to 20 per cent in a few days. We put out both early and late corn, and we stagger our planting dates, starting May 1st. We figure short-season corn will reach 26 per cent moisture about 10 to 14 days before long-season varieties. Early harvest with less ear drop about makes up for the larger potential yield of late varieties."

The operation of either picker-sheller, corn combine or trailer sheller is not difficult to master. Recommendations of research engineers in colleges and in the implement industry boil down to a few simple rules. **1.** Plant an easy-husking variety. Seed dealers have comparative ratings. **2.** Plant both early and late varieties so that the field shelling can proceed at the best moisture average. **3.** Don't try to estimate moisture content—get an accurate and representative test. The corn

A NEW SOURCE OF FARM INCOME



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Box 67, Storm Lake, Iowa

P.S. ARE YOU GETTING MAXIMUM RETURNS FROM YOUR FARM? Let a Professional Farm Manager apply successful business principles and proven scientific methods to your farm. Write for full information.

you will be harvesting will be in the unhusked ear, so don't shell or husk the samples to be moisture tested until just prior to making the test. **4.** For wet corn storage, begin harvesting at 30 per cent moisture content. For corn to be dried and fed, begin harvesting at 28 per cent moisture. For corn to be dried and sold, harvest at 26 per cent moisture. **5.** Where possible, avoid harvesting early in the day or just after a shower. Snapping roll losses in the morning or in a moist atmosphere are considerably greater than on a dry afternoon. **6.** Avoid areas in the field where corn is so much wetter than average that coating of the rack and cylinder of combines and the sieves of shellers is excessive. **7.** Pick in paired rows as planted. **8.** Slow down. Most standard pickers are driven too fast. Field shelling equipment operates most efficiently at slightly lower rates than recommended for standard pickers, to allow for efficient shelling. Losses at 3 miles per hour are almost double those at 2 miles per hour. Top speed recommended is 2½ miles per hour. **9.** Adjust the gathering points to just touch the ground. **10.** Major implement adjustment can mean the difference between profit and loss. On combines, decrease cylinder speed. About 700 rpm is right for 15-inch cylinders. Follow manufacturer's instructions. Run concaves as level as possible. Increase concave openings. An opening of ⅝ inch is usually recommended to get all the kernels without excessive cob breakage. Adjust the fan blast to clean the corn without blowing any over. Adjust the intake and outlet baffles or other openings to the shelling chamber in the field. For best results, corn must remain in the sheller or cylinder just long enough to strip the cobs. If not held long enough, kernels will be discarded on the cobs. Holding the cobs after they are stripped wastes power, reduces shelling capacity, breaks up the cobs and causes a cleaning problem. Snapping roll adjustment is very significant in reducing losses. Snapping rolls should run as level as possible. For damp corn, set the rolls fairly far apart. If set too close, stalks cannot work freely through the rolls; if set too far apart, small ears will be crushed and the butts of large ears shelled off. **11.** Keep the machine loaded somehow. Faster travel in poor corn and shutting down on the turns will help. Shelling is most complete when the shelling compartment is filled. **12.** Carry a 40-inch square made of twine and large nails in the tool box. With it, check losses on the ground occasionally. A check behind each row will usually show up unequal snapping roll adjustment in two-row equipment. Count the kernels within the 40-inch square, considering 20 kernels the equivalent of one bushel loss per acre. **13.** In elevating field-shelled corn to a dryer or a storage bin, set up a small fan to blow the debris from the corn.

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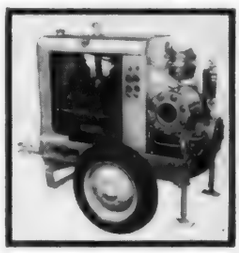

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Visitors Welcome

I WON'T BE INTEGRATED

(*Continued from page* 50)

males from New England to produce chicks for California. Max Foster, of the Modesto Hatchery, where Adams buys most of his chicks, gets this foundation cross, known as multipliers, and produces eggs to hatch for broiler customers. These chicks have the desirable white pin feathers.

Brooding—All In - All Out

Adams uses a hot water heating system in the old barns. The 1½-inch hot water pipes are anchored one foot off the cement floor and are 120 feet long. There are six pipes spaced to cover about a five-foot width. These pipes are covered with sectional 4x8-foot, one-inch board covers. Then over the covers he unrolls tar paper and scatters shavings over the paper. This holds in the heat and as the chicks grow they can walk on top of the brooder, giving more floor space.

The other three broiler houses were equipped with individual butane and gas brooder units. A two-foot cardboard fence is placed around all the brooders to hold the birds close to the heat and make it easier to feed them.

From one to three inches of litter builds up during the 10-week period. When the broilers are shipped the tar paper is taken out and burned and the board covers cleaned. The litter is scraped from under the pipes, the floor swept, and covered with pine shavings for the next brood.

Day-old chicks are ordered every other week. Boxes of 100 chicks each are dumped out at the brooders. The heat for the first week is set at 90 degrees, except during the summer. The temperature under the brooders is dropped one degree every other day the first five weeks or until the temperature goes down to 70 degrees. It is kept at 70 during cold weather, and often discontinued in hot weather after five weeks, when the birds are full feathered and able to withstand most changes.

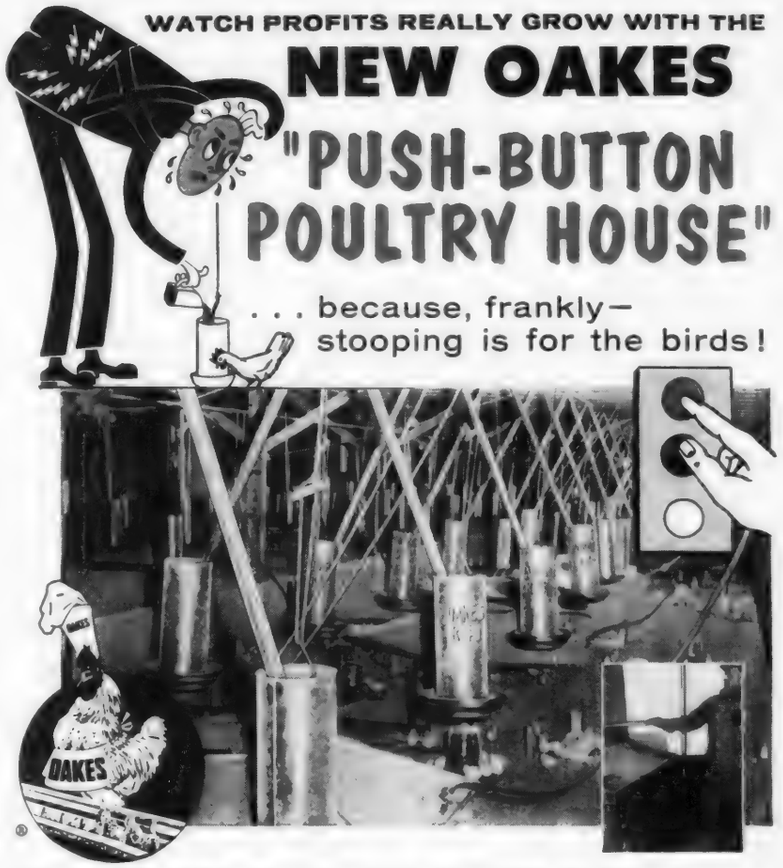
The chicks are debeaked at the hatchery. This adds one-quarter cent to the base cost of 13 cents. The original reason for debeaking the birds was to stop cannibalism, but Adams also found it stops the birds from wasting feed and increases feed consumption one half of one per cent.

Chick costs are coming down in California. Adams used to pay as high as 35 cents per chick. With the national output in 1957 running 1.7 billion birds compared to 700 million in 1951, the chick hatcheries have enlarged and modernized.

Adams' Day

Adams' operation is about as automatic as an operation could be, but he has yet to find a machine to take the place of the "eye of the poultryman." One way to discover how he covers a thousand-and-one details is to join him on a typical day.

He is up at 7:00, has breakfast, then starts his rounds at 7:30. He goes to the unit with the youngest birds first and scans the coops for any signs of disturbance.



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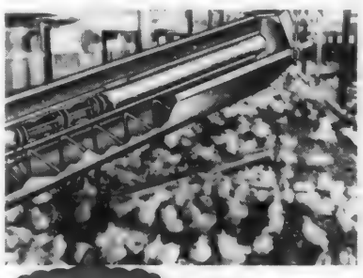

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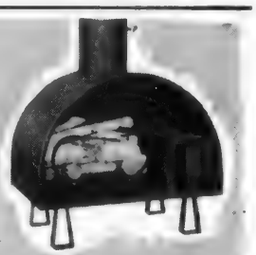

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He has had skunks get in and kill a bird or two. And one day boys, playing in the bulk tank, left a can lid which stopped up the outgoing feed spout.

He then checks the feed hoppers to make sure they are full of feed and are functioning. He inspects the machinery operating the automatic feeders under the hoppers, flips the belts to test tightness, and checks to see the timers are working. He may open or close windows, depending on the wind and weather.

He checks the water supply and flow, walks down through the building, picks up any dead birds, or materials that have partially clogged the feed troughs. At times the corner turns on the feed chain may catch a bird's foot and he has to free it, or shavings or feathers may cause some spillage. He turns on the lights, replaces burned-out bulbs, smells the air and in general makes sure the birds are looking and acting right. He inspects inside the brooders to see if the burners are free of carbon buildup; looks at the temperature gauge in each individual brooder. In the big hot water sytem units he looks at the thermometers at front, middle and rear of the building. He checks the big bulk tank.

He is through with his rounds to all five units by noon. He either goes home to lunch or to the Lions Club luncheon in Brentwood or to some other luncheon engagement. More often than not, he meets with his feed or hatchery salesmen at Rolando's Inn. He makes his lunch period leisurely, usually taking two hours. He then makes a second tour of inspection during which he may check weights.

There may be a clean-up job, a load of feed to stow away, or shavings to be spread for the arrival of a batch of chicks. And there are always accounts and routine business to fill in extra time.

Jack Adams has no idea how many miles he covers a day, but the faculty that serves him best is a sixth sense which enables him to glance at a bunch of chickens and know how they are doing.

Disease

Adams' chief insurance against disease is the isolation of his operation—no other poultry in sight. He immunizes against Newcastle disease and visitors are permitted a look-in only.

He buys day-old chicks and treats them by mixing 10,000 units of Newcastle vaccine in 50 gallons of water per 10,000 chicks. This is put in a barrel and flows by gravity into the water system. It is put in at 7 a.m. and lasts about four hours. When the vaccine mixture is consumed the tap water is turned on again. Adams hasn't treated for any other diseases in the last three years and has had no outbreaks of any kind. He feels the hatcheries are doing an excellent job of putting out disease-free birds. "With an all-in, all-out deal, each eight to ten weeks, with the floor swept and fresh shavings spread, plus a two-week interval, there isn't much danger of diseases," he says.

The litter arrangement is another Adams time-and-labor-saving machine. He pays to have the fresh pine shavings dumped directly into the coop, spreads the litter with a small tractor, and sells manure and litter to the neighboring orchardmen who clean it off the floor as part of the purchase price. "Chicken litter has been a lost issue on too many farms," Adams said, "but it could be a gold mine. We need to educate farmers to its value."

Free Marketing Beats Integration

Up to July 1 of this year Adams sold his birds on the open market. He chose the buyers making the best deal, and sold most to the American Poultry Company in San Francisco.

Now Adams has a contract for his full production. He insists that a contract price is not integration and is a good thing for the broiler industry. "I should like to see it sweep the industry," he says. "A grower can then work toward the best management and costs to live within the price. I believe it firmly enough to try contracting this coming year with Swanson TV Dinner concern for 21 cents per pound. I am to deliver 6,000 two-and-three-quarter-pound birds every week except Thanksgiving and Christmas. I will put in 12,000 birds per brood and market them in 8 weeks. This will add up to a production of 300,000 birds from July 1, 1958, to June 30, 1959, and will equal around 825,000 pounds of live weight meat.

"I doubt if any other meat animal can match our per-man production. For example, in comparison with beef cattle, it takes at least three men to feed and care for 1,000 steers in the ordinary feedlot. They will put on an average of 300 pounds of gain over a period of 120-150 days. This is 300,000 pounds or 100,000 pounds per man, or about 200,000 pounds per year."

Jack's marketing program starts with weighing of sample lots of birds from the fifth week on. Each week thereafter he keeps the processor notified of their weight progress. When the desired weight is reached he notifies the processor to send out his trucks to pick up the shipment.

The toughest work session of all comes for Adams during the

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New low cost Clay Scotsman Barn Cleaner unloading directly into spreader. You can make a trip to the field and be back in less time than you now spend cleaning by hand.

Tips on planning for a low cost barn cleaner

You'll probably install a barn cleaner sometime within the next few years. Even though you may not put in your cleaner until later, it will pay you to plan in advance. Here are some steps that you can take now to help you get the best installation at lowest possible cost.

If possible, plan to have cleaner run straight out from end of gutter instead of unloading from side of barn. This can save you up to $150 in materials and save your cleaner from unnecessary wear and load.

When running high voltage lines into barn, be sure to place terminal as close to the proposed location of barn cleaner elevator as possible. If you plan to do wiring in your barn between now and time you install your cleaner, write to CLAY for tips. Providing for adequate wiring now can save you up to $50.

If building or remodeling, check with your local milk sanitarian to make sure that gutters are wide and deep enough for a gutter cleaner. Design your layout so that gutters will run through pens. These gutters can be covered with a false cement top which can be knocked out at time of installation. Doing this now can save you $50-$100 later.

If you're building or remodeling now and planning on a cleaner later, it pays to order parts that have to be set in cement and install them now. This will save on installation charge later. Also, when laying out your barn, select an elevator location that has good drainage and provides easy access with a spreader. If possible, have the spreader location on the down slope of a hill.

These are just a few of the money-saving and trouble-saving steps that you can take now. For further information, send for CLAY'S FREE PLANNING BOOKLET. Gives suggested floor plans for 20, 30, 40 and 50 cow barns. This planning guide can save you many dollars and make future installation easier. Send rough sketch of present barn or of remodeling you plan. Indicate number of animals.

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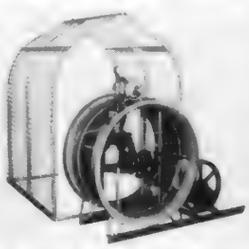

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night he ships the birds to market. The loading begins at 2 a.m., while it is still dark. This keeps the birds quiet and easy to catch. The men replace the white bulbs, and work by blue light, which is invisible to chickens.

It takes a five-man crew for loading. The company sends two and Adams hires two men to make up the loading crew. Three men carry the birds from the coop to the loader who puts them in the wire cages on the truck. Thus three men pack, one man catches, and one man loads the truck. It takes about three hours to load 10,000 birds.

After a one-hour haul the birds reach the processing plant. They are killed on arrival, eviscerated, inspected by U.S. or State veterinary inspectors for edibility and graded. Any rejects are discarded, but Adams' good planning holds rejects to only 4 to 15 per 10,000 birds. His birds are of uniform quality and top grade.

Operating Costs

Adams' operating budget has expanded to over $125,000 per year. He finances his feed and chick purchases on credit from the local bank, or the feed companies. His notes are short-term, for 60 to 120 days.

Operating expenses during 1957 (per bird) were as follows:

Chicks	13¼c (includes debeaking)
Brooding costs	4c
Feed	30c
Other costs	1c
Total	48¼c

Rental units and rent paid:

Concord	$1500 per year	30,000 sq. ft.
Byron	720 per year	10,000 sq. ft.
Marsh	720 per year	10,000 sq. ft.
Lone Oak	720 per year	10,000 sq. ft.
Total rent	$3660	

Rent for the last three units includes equipment.

All production costs per pound of live bird averaged between 17 and 18 cents in 1957. Brooding costs have averaged 4 cents per bird up to five weeks of age. Last year he made a profit before taxes of 2 cents per pound over operation costs.

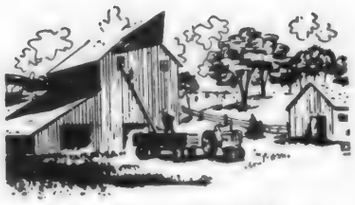
The new TV dinner contract coming up should give him a 4-cent margin.

One way to get Adams' operations in perspective is to compare figures with another top quality broiler producer. This nearby operator raises 280,000 birds per year but hires three to four men full time.

"I keep records," Adams says, "plenty of them. A man can't keep up with the business without them. I can dig out any detail of my broiler operation for the past seven years.

"One of the most useful records is the weighing of the birds at five weeks and figuring feed conversion to that date. If they have made good use of their feed, they're a cinch to put on fast, economical gains after they are fully feathered."

What happens, Adams was asked, if he should get sick or want a vacation?



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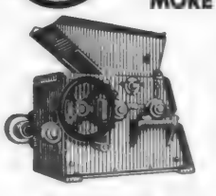

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- Has easy operation and long life.

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ALWAYS ON GUARD Protecting Livestock Against Flies, Lice, Ticks, Mange Mites. . . . Cattle automatically treat all parts of body including neck, shoulders, rump and undersides. Keeps cattle contented. . . . Conditions hair and hide. The LOW COST labor saving way — Cheaper and easier than spraying. Much more efficient!

There's an Automatic Oiler Tailored for your Specific Use. . . . Prices start at $23.95. . . .

"All-Steel" model recommended for feeder cattle — dry lot use. Cable-washer rubbing element is built to last a lifetime.

"Rope-Wick" model recommended for dairy use—cattle on pasture. Giant size marine rope rubbing element is rot & wear resistant.

FULLY AUTOMATIC—Insecticide is released only as cattle rub . . . just fill the tank and forget it—No service problems.

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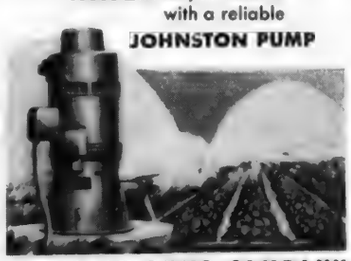

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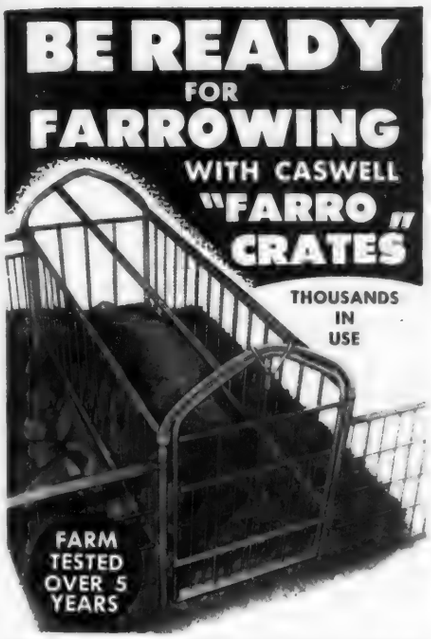

Here's the favorite farrowing crate of top hog producers . . . purebred raisers and agricultural colleges all over the country . . . the all-steel Caswell "FARRO-CRATE." **Prevents the sow from crushing baby pigs.** Don't take chances! Just one or two pigs lost per litter can cost you your hog profits. The FARRO-CRATE is collapsible, portable and can be hung up or stored outside when not in use. Cheaper and better than lumber. Handles any size sow. Available in single units or multiple series. Guaranteed.

FREE PLANNING SERVICE for complete farrowing setup in your present buildings. Write for details and our valuable FREE 16-page "Hog Profits" Book.

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Know your correct market weights. All-steel WAYO-CRATE scale is extremely accurate. 500 lb. capacity. A "must" for the top hog producer. Write for low price and literature.

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NEW . . . Haban FIELD HUSKER-SHELLER

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"It's mighty important that someone be here to keep a constant check," he says. "Two hours without water or feed could cause a loss of ¼ pound per bird—a broiler is over 75 per cent water, and they lose weight by shrinkage of moisture. I have worked this help deal out in two ways. First, I married a wonderful helpmate. Mrs. Adams was raised on a poultry farm and knows all the details of how to do the chores without a hitch in the operation if I have to be away." Because Adams' wife teaches school nine months a year, he has lined up Floyd Reese, a neighbor. Floyd works for the Contra Costa Mosquito Abatement District and can fit his hours to spell Adams.

Adams finds time to work in community activities. He likes people and works easily with them. He is president of the Brentwood Lions Club and was chairman of the Brentwood Carnique July 4th celebration this past year. He plans to attend the International Poultry Congress at Mexico City in September, 1958.

And to top it off, he listens to the farm radio hour and jots down any idea he thinks he can use.

THE AUTHOR: Joseph Muir is a Utah-born extension agent, now farm advisor in Contra Costa County, California. He claims a spell at Texas A & M College taught him to brag, and California gave him something to brag about. He has a wide knowledge of the agriculture of the West, having worked in Texas, Washington, Utah and California.

ADJUSTING TAXABLE INCOME

(*Continued from page* 73)

Agents are unlikely to challenge items costing less than this—except livestock.)

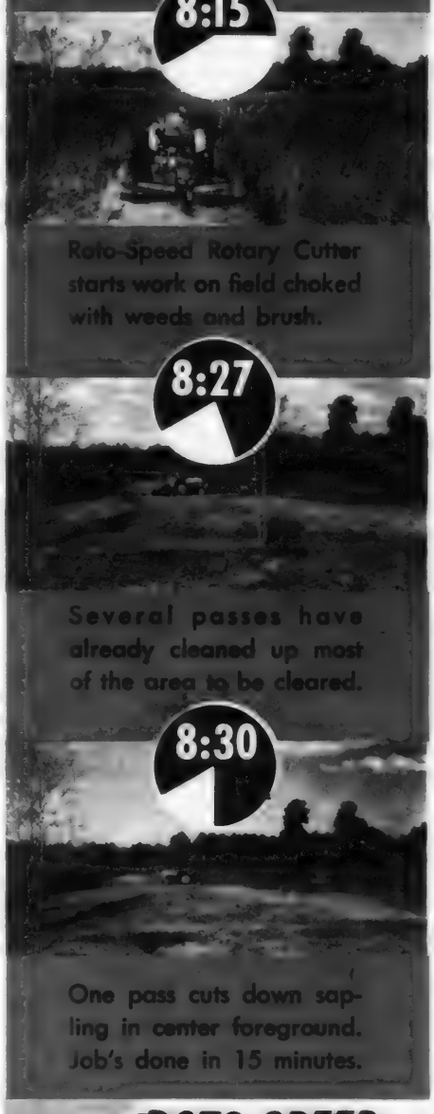
Other adjustments in depreciation can result from improper allocation between land and buildings, fences, wells, and other improvements in the case of a purchased or inherited farm. Some farmers have tried to take depreciation on the entire purchase price or date-of-death value, in the case of an inherited farm, thus attempting to depreciate the land as well as the buildings. Others have based depreciation on an "estimated fair market value" of a farm purchased at a much lower figure. Excessive depreciation arising from such computation will be disallowed, often with penalties.

On the other hand, some taxpayers who have inherited a farm have carried on the decedent's depreciation schedule instead of setting up the date-of-death values for buildings, improvements, and equipment and beginning a new depreciation schedule as they are permitted. The new schedule usually results in greater deductions.

Sale of Inherited Property

The date-of-death value of inherited property is its tax basis when it is sold. For example, if a farmer accounting on the cash basis dies, leaving fifty head of his own raised steers worth $8,000, whoever receives the steers will have no tax profit if the steers are sold for $8,000 (or, if sold for more than that, only the excess over $8,000 will be tax profit). Similarly, the

15 minutes' work with ROTO-SPEED


8:15
Roto-Speed Rotary Cutter starts work on field choked with weeds and brush.
8:27
Several passes have already cleaned up most of the area to be cleared.
8:30
One pass cuts down sapling in center foreground. Job's done in 15 minutes.

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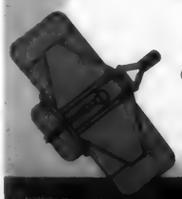
mows pastures, shreds stalks, mulches stubble and clears land. See your dealer for a free demonstration or write direct to Lilliston.



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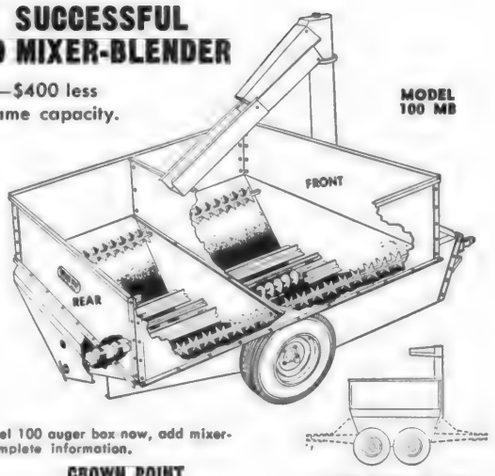
- 6,000 LB. CAPACITY! Holds 120 bu. — 145 cu. ft. with extension sides and tandem axles.
- 5 FORCE FEED MIXING ROLLS!
- MIX TO COMMERCIAL STANDARDS ON YOUR FARM

JUST PUSH IN TO MIX!



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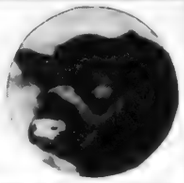
FOR GREATER BEEF CATTLE PROFIT



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***increase* weaning weights 50 to 100 pounds . . . *increase* calf crops 10 to 15 per cent . . . *increase* yearling weights 100 to 200 pounds . . . *increase* mature cow weights 100 to 200 pounds . . . *increase* grazing efficiency and traveling ability . . . *increase* milk in replacement cows . . . *increase* resistance to heat, cold, pink-eye, cancer eye and other infections . . . *increase* carcass value . . . and finally, *increase* market returns by bringing higher prices for weight.**

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25 for $5. TREES . .

3 to 5 yr. healthy, selected trees, 5" to 16" tall. 5 each of: Colorado Blue Spruce— Norway Spruce —Austrian Pine — Scotch Pine — Douglas Fir.
Postpaid at planting time
Write for Free Evergreen Catalog

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6 RHODODENDRON and 6 AZALEAS All for ONLY $5.95

Strong 2-year transplants 4 to 8" tall. Mass of roots, large leaves. Rhododendron, from red flowering stock. Azalea, hardy, mixed colors. Postpaid at planting time. Free Catalog.

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AMERICA'S BEST AGRICULTURAL

HI-CLEARANCE SPRAYER

SELF PROPELLED

write for information Dept. FQ-S HAHN, INC. Evansville, Ind.

HAHN HI-BOY

THE HI-SPEED SPRAYER

date-of-death value of growing, standing, or harvested crops of a cash basis farmer determines the tax profit when they are sold.

The Internal Revenue Service regulations have recently clarified what happens when a man dies after signing a contract to sell a farm, possession and deed occurring on a date after his death. There is no taxable gain when the heir completes the deal—no matter how large the gain would have been had the decedent lived to carry out the sale himself!

Personal Use Items

One common oversight which often causes the farmer trouble with the Revenue Agents is not allocating a fair portion of farm expenses to himself. Normally, a farm family will have a certain portion of the expenses listed on page two of the farm schedule (Form 1040F) for personal use, as distinguished from farm business use. For example, some of the fire insurance and some of the property taxes may be expenses of the farm home. The same is true of some of the feed—for livestock and poultry consumed by the family; and some of the seed, chicks, and dairy expense—to produce food for the family table. Technically, such personal use expense is no more deductible than the expense of toys and candy for the children.

Because of this it will make a favorable impression on the Internal Revenue Service if the taxpayer subtracts from the total of farm expenses an estimated lump sum (say $50, $100, $150, etc., depending on the size of the family and other special circumstances) and states this is the "estimated personal portion thereof." (However, the personal-use portion of the family auto should be handled separately in computing the "farm share" of auto upkeep.) Failure to make such a deduction leaves adjustment to the Revenue Agent, whose estimate of the "personal portion" will usually be much higher than the taxpayer's. In a recent case involving a Maryland farmer, the agent estimated $1,000 a year and the courts backed him up.

A suggested contract clause for postponing payment on grain sales:

"In consideration of the above agreement of the owner to sell this grain, it is agreed between the owner and the purchaser that the owner is to receive payment for this grain on January —, 1959.

In these days of international tension, no honest man would want to shirk his just part of the tax burden. Tax laws, however, were written with the understanding that each taxpayer has the right to make maximum use of the exemptions and relief written into them. To do otherwise would be foolish.

THE AUTHOR: Jack R. Miller is a tax lawyer in Sioux City, Iowa, and former attorney for the Bureau of Internal Revenue. His practice is devoted largely to the problems of ranchers and farmers in the surrounding six-state area. He is a member of the Iowa State Senate, and was chairman of the American Bar Association Committee on Tax Problems of Farmers. He has lectured widely on tax matters before numerous farm, business and law groups.

THE DAIRY BARN

(*Continued from page* 14)

price of milk is $3 a hundred pounds, the cows must be yielding an average of more than 7,000 pounds of milk to justify idling the corn planter.

In other words, grassland farming with cows yielding 7,000 lbs. gives labor the same hourly returns as raising 40 bushel corn. This is after all other expenses are paid, including interest at 4 per cent on invested capital. The $3 price for milk is after hauling charges are deducted. If your cows won't produce 7,000 pounds, you are losing money by not raising corn on those extra acres.

If your normal corn yield is 55 bushels, your cows have to average 12,000 pounds of milk, or you should be raising corn. If you can grow 70 bushel corn, your herd average must be 15,000 pounds.

A rise in the price of milk throws the balance in favor of the meadows. If you enter the grade A market, and receive $4 cwt. for the milk, with hauling charges paid, the herd average need only be 5,000 to compete with 40 bushel corn. Similarly, 55 bushel corn land should be in hay if the herd average is more than 9,000 pounds, and 70 bushels balance an 11,000 pound yield.

The study shows the average dairy farmer in the Corn Belt will have difficulty making grassland farming pay if his land will produce only average corn yield. Income figures for beef cattle and sheep show more meadows will pay only if the additional forage is fed to top-producing animals.

Farm size in the study was 120 acres, and income was adjusted so everything was equal except corn yields, milk price, and production per cow.

By R. H. Blosser

100% PRECISION BATCH MIXING

- on ensilage, antibiotics, grains,
- chopped hay, supplements,
- hulls, mesquite, cobs, ear corn,
- pellets, vitamins, etc., and
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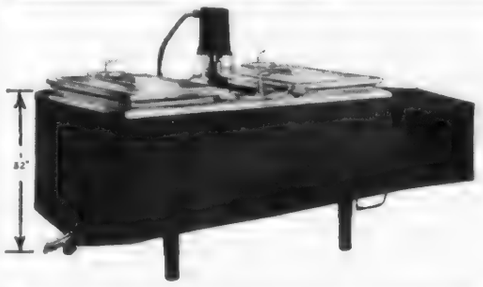

Direct Expansion Rectangular Tanks with V-bottom take less volumetric space than any other shape ... assure lower rail height for easy dumping, cleaning . . . give more effective cooling, with less milk needed to cover refrigerated surface . . . promote better agitation with positive fat dispersion.

Complete Package Units: 210, 300 and 400 gallons.

Remote Installation Units: 210 to 1000 gallons.

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Direct Expansion Cylindrical Tanks — the lowest priced, small tanks you can buy. 90- and 150-gallon sizes. Fit any milkhouse . . . pay for themselves in three years at conventional savings of 25¢ per cwt. Ready to run when plugged in. Wide-sweep, slow-speed agitator.

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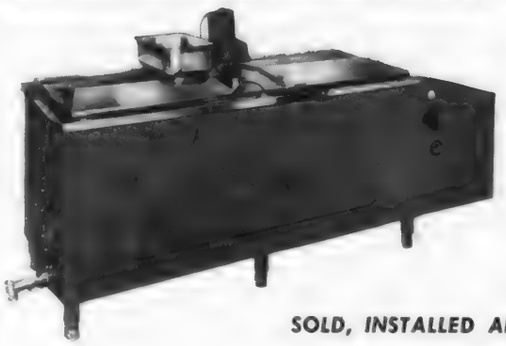

Ice Bank Tanks—use only half the current needed by conventional spray-type tanks. No water pump or agitator motor to run after milking to hold milk to 40°. Power costs on par with most direct expansion tanks. Full-length sidewall cooling and aerating. Since warm milk never dumps into cold milk, blend temperatures always below 41°.

Complete Package Units: 120, 185, 285 and 400 gallons.

Remote Installation Units: 185, 285 and 400 gallons.

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Wet grain in the hopper . . . Dry cooled grain from the M-C flowing automatically.

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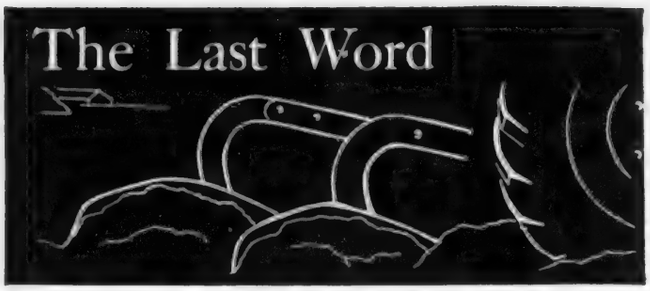
The Last Word



Transporting Ag Workers If you transport farm workers and cross state lines, you may be subject to new federal regulations. They apply only if (1) workers are transported more than 75 miles and across a state line; (2) three or more workers, not members of the farmer's family are hauled; (3) workers are transported in a vehicle other than a passenger automobile or station wagon, and (4) the owner does not have a certificate as a common carrier of passengers. The new regulations can be secured by writing the Bureau of Employment Security, Department of Labor, Washington 25, D. C.

Sorghum, the Wet or Dry Crop During the past wet summer, farmers have found that the sorghum they have prized for its drouth resistance can also stand with wet feet. This was first noticed a year ago in southern Indiana when the White River flooded. Corn and soybeans were drowned out, but sorghum survived. The farmers' reports caused R. C. Pickett and his assistant, Neal Barnett, of Purdue University, to run a test on how much water sorghum can stand. Under test conditions, sorghum in running water two inches above soil level, showed no appreciable damage after eight weeks. Plants which were completely submerged in standing water showed no ill effects for nearly four weeks. Corn was killed in four days when submerged, in six days when grown in two inches of running water.

Inventive Farmer Merle Lathrop is a Kansas farmer near LaHarpe who believes in solving his own problems rather than depending on the agriculturalists. As a matter of fact, he agrees with a local judge who coined the following definition: "An agriculturist is a fellow with the ability to keep the farmer's attention distracted while he is losing his shirt." One ingenious solution to a Lathrop problem is his gate for an electric fence. Actually, it is a double gate, each side electrically charged, which swings open like old-fashioned saloon doors. Each four-bar gate is made of ¾-inch tubing with short-angle braces far enough back not to catch on passing equipment. One-inch rubber hose on the tip ends of the bars prevents their scratching the paint on cars. The gates swing open easily when a car or tractor pushes through and are pulled to the closed position by door springs. A back stop is attached to one of the posts to keep the gate from swinging open too far for the spring to return it—the barn acts as stop for the other gate. Insulators are not necessary, Lathrop claims, when the gate is mounted on wooden posts.

The home-made electric gate is pushed open by the car. The inventor says no insulators are needed on a wooden post — we would prefer the insulators for that rainy day.

Another Lathrop invention is a portable foot scraper—a welded crosspiece on a steel fence post which can be hung near a door where a permanent scraper would be in the way. And still another is the posting of an information box, an old mailbox, near the farm gate. When the Lathrops, Merle, and his wife, Jimmie Lou, are away, they leave a note in the information box stating their estimated time of return. They also leave instructions to customers for brome grass as to where the seed is and how to get it. "We have made numerous sales that way," Lathrop said. "We have absolute trust in a farmer who is interested in planting brome grass."

Continuous Worming Preliminary tests indicate that hygromycin B, a new antibiotic worming agent for pigs, is also effective in ridding chickens—both broilers and egg layers—of some of the parasitic worms which infest them. So far, the tests show the antibiotic to be effective against the large roundworm. *Ascaridia galli,* one of the most common intestinal parasites of poultry, and also against caecal worms, *Heterakis gallinae,* which are believed to be hosts to the organism which causes blackhead disease.

Continuing tests of the antibiotic with swine show that it can be fed continuously without causing stress problems and is effective against roundworms, nodular worms, and whipworms. Typical of the test results were those from Ohio State University which compares the number of worm eggs found in a gram of manure from pigs fed the antibiotic with control pigs. Where control pigs on pasture showed a count of 10,706 roundworm eggs, hygromycin B fed pigs had a zero count; nodular worm count was 2,040 to 1; and whipworm egg count was 45 for the control group, and 6 for the group fed the antibiotic. Feeding rate is 6,000 units of hygromycin B per pound of complete ration for market pigs from weaning to 125 pounds. If pigs are held on contaminated lots from 125 pounds to market, some authorities recommend continuing the antibiotic, though tests in Canada and South Dakota show there is some setback after 125 pounds. Tests of pigs from weaning to 125 pounds from five different colleges showed an average weight increase of 6.9 per cent for the antibiotic fed pigs over the controls with these gains being made on 5.9 per cent less feed.

THE FARM'S PICTURES

Cover—Berle Mercer bringing in stray Highlanders in Alaska—by Robert B. Goodman from Black Star.

34 thru 39—Photos by Robert B. Goodman from Black Star. 35—Map by Fred Eichenberger. 40 and 41—Grant Cannon. 42—Wilford Miller. 43 thru 47—Robert B. Goodman. 48 thru 51—Joe Munroe. 52 thru 55—Courtesy Montana Chamber of Commerce. 56—May W. Wettach from Shostal. 57—Fred Knoop. 58—Graphs by Fred Eichenberger; Ohio State University. 59—Drawings by Fred Eichenberger. 60 and 61—Fred Knoop. 61—Drawing by Fred Eichenberger. 62 and 63—Photographs by Salter. 63 (bottom) Charles R. Koch. 64—Dow Chemical Co. 65—Dow Chemical Co.; Robert B. Goodman. 66 thru 71—Bob Taylor. 70—Drawing by Fred Eichenberger. 72—Joe Munroe. 74—James J. Marek. 75—Robert B. Goodman; Joe Van Trump. 76 and 77—Drawing by U. S. Steel. 77 and 78—Photos by Harry Brown, U. S. Steel. 78 and 79—Charts by Fred Eichenberger. 132—Merle Lathrop.

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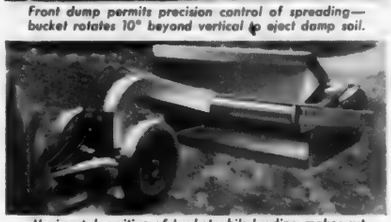

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LETTERS

(*Continued from page* 12)

the job should be done, and I am also sure that a breeder-feeder would not be guilty of making any broad generalities that would be of a libelous nature to certain up and coming breeds of hogs.

J. R. Ferguson
Extension Specialist of Animal Husbandry
University of Maryland
College Park, Maryland

Operating the Forage Harvester

Sirs:

Your very excellent story, "R—Good Grass Silage," which appeared in your Spring 1958 issue suggested that a ¼ to 3/8-inch length of cut is best for wilted material while it is satisfactory to use a ½-inch length of cut for direct-cut silages.

It is apparent that many of the people making recommendations for grass silage have never operated a forage harvester. To get a ¼ to 5/16-inch length of cut with two of the popular field forage harvesters, the operator is required to use six cutting knives on the cutter head with the slowest feed speeds possible. When silage is very short cut, a tremendous amount of energy is expended in the cutting process. This slows down the rate of travel, reduces field capacity and, as a result, the so-called very short lengths of cut recommended are not very often used in actual farm practice. Farmers find it preferable to set the machine for a ¾-inch length of cut and get the silage-making job done rapidly.

Our Agricultural Engineering Department, under the leadership of Dr. K. K. Barnes, has studied the new flail-type forage harvesters which shred and lacerate the silage. One manufacturer of flail type machines, John Deere, states that their flail-cut material is made up of severed and lacerated plant particles of which 50 per cent are shorter than one inch and approximately 50 per cent are longer than one inch. Our studies, using both the John Deere and the Lundell machines, indicate that the shredded material when harvested at the right stage of maturity and stored in a horizontal type silo will produce silage equal in quality to that which is square-cut with a theoretical length of cut of ½-inch.

Dale O. Hull
Extension Agricultural Engineer
Iowa State College
Ames, Iowa

Reply to a City Mouse Letter

Sirs:

I don't know what mouse I'm writing this to but I believe it's to a RAT.

It's about old Nellie. There are at least two points I'd like to make.

First, every establishment should have something around that's no damn good. A thing that if the barn was on fire you would get it out first: a thing that when it was young has run away and broke mowing machine poles and had you up more than one night with the colic when you didn't know whether it would ever see daylight again. Not to have something like that around is just asking for trouble like working on Sunday or shooting a stray dog or cat.

My next point is this. when you work with any medium you must cope with certain limitations. Nature moves slowly. You can't go out and expect to do an hour's job in five minutes. Horses are a part of the nature and timing of growing things.

Around here they took the horses away from these dumb farmers and now they are emptying the farms of the cows and hens—and farmers.

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Elmer, New Jersey

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OVER THE BACK FENCE

(*Continued from page* 18)

find they have to pay income tax on all that loot, especially the stenographer who won a $10,000 mink and will have to pay at least $2,000 tax, which is a lot for a coat, even a $10,000 one.

But what I was thinking about was that there are other ways to make people happy. For example, take the television set at Debbs' house. He bought it last year during the drouth.

Crops were burning up, grass was turning brown, ground cracking open. Debbs had been affected by the drouth. He wasn't broke—he's got money in the bank, owns his farm, has a two-year supply of silage in the ground, drives a good car, got good equipment, but the drouth was getting him down. Made him brood. He stopped spending money. He'd get up every morning, take one look at the cloudless sky and the baked earth, and shake his head and decide to cut down on expenses even more.

Then one night in August we got a rain. It started raining about 11:30 and kept it up off and on all night. As anybody knows, there's nothing sweeter-sounding than a rain on the roof after a long dry spell. I thought it was going to be a real drouth-breaker, but, actually, when I got up about daybreak I noticed my rain gauge showed only an inch and two tenths. Enough to help out but not nearly enough to break a drouth.

I emptied my gauge, then I thought, Debbs is not going to like this. He'll be up in an hour or so and he'll head for his gauge, and he'd feel a lot better if he had at least 2½ inches.

So I took a fruit jar full of water from my well over to his place and in the dawn's early light added an extra inch and three tenths to his gauge.

It was one of the nicest, most neighborly things I've ever done. Debbs glowed all over when he came out a little later on and saw the two and a half inches registered on his gauge, and he went into town and bought the television set his family had been after him to get, the one I was looking at last night.

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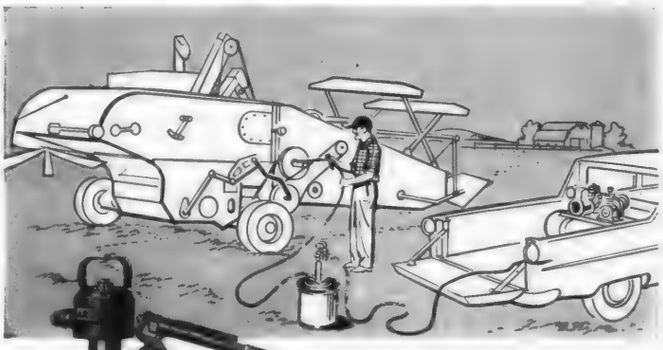

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(*Continued from page* 20)

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Feeds and Feeding (22nd ed.)—by F. B. Morrison **$9.50**
Complete book on livestock and poultry feeding.

Beef Cattle—by Roscoe R. Snapp **$6.50**
Excellent book on beef production.

Swine Production—by W. E. Carroll & J. L. Krider **$7.00**
From feed to pork to cash.

Dairy Science (2nd ed.)—by W. E. Petersen **$6.50**
One of the best books on dairying.

The Livestock Book—by W. R. Thompson, et al. **$4.25**
Sequel to the "Pasture Book." It's a good one.

A Veterinary Handbook for Cattlemen—by J. W. Bailey **$5.00**
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Profitable Sheep—by Spelman B. Collins **$7.50**
The best beginner's sheep book we've seen.

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One of the most readable books on horsemanship.

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The breeds, care and feeding of sheep.

The Marketing of Livestock and Meat—by S. H. Fowler **$7.00**
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Stockman's Handbook—by M. E. Ensminger **$8.50**
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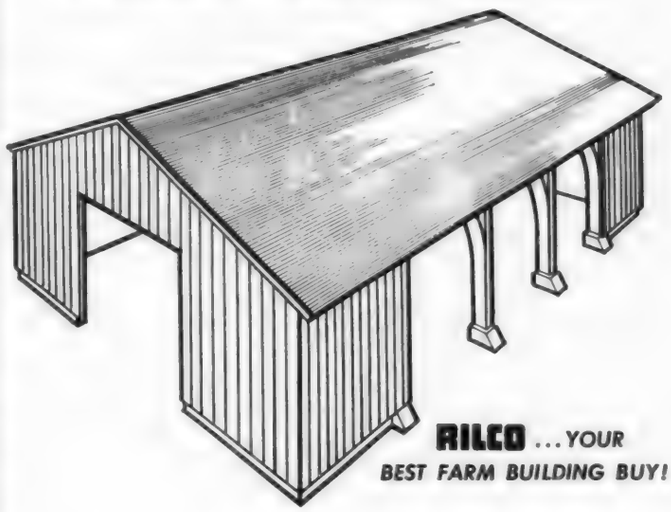

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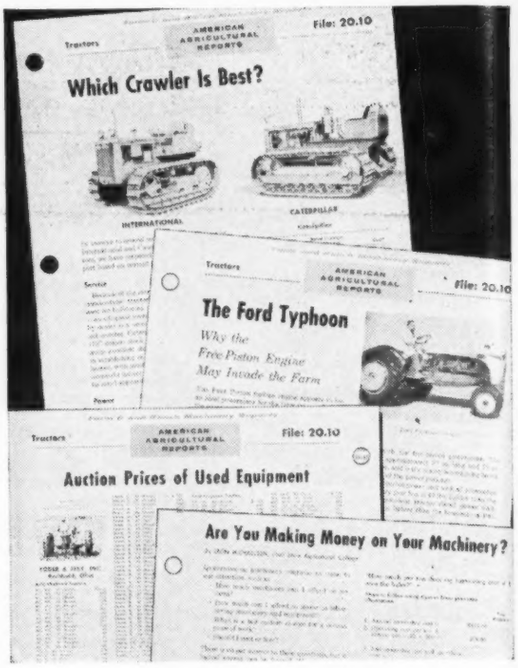

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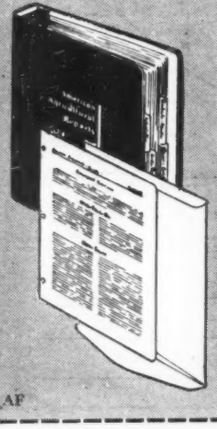

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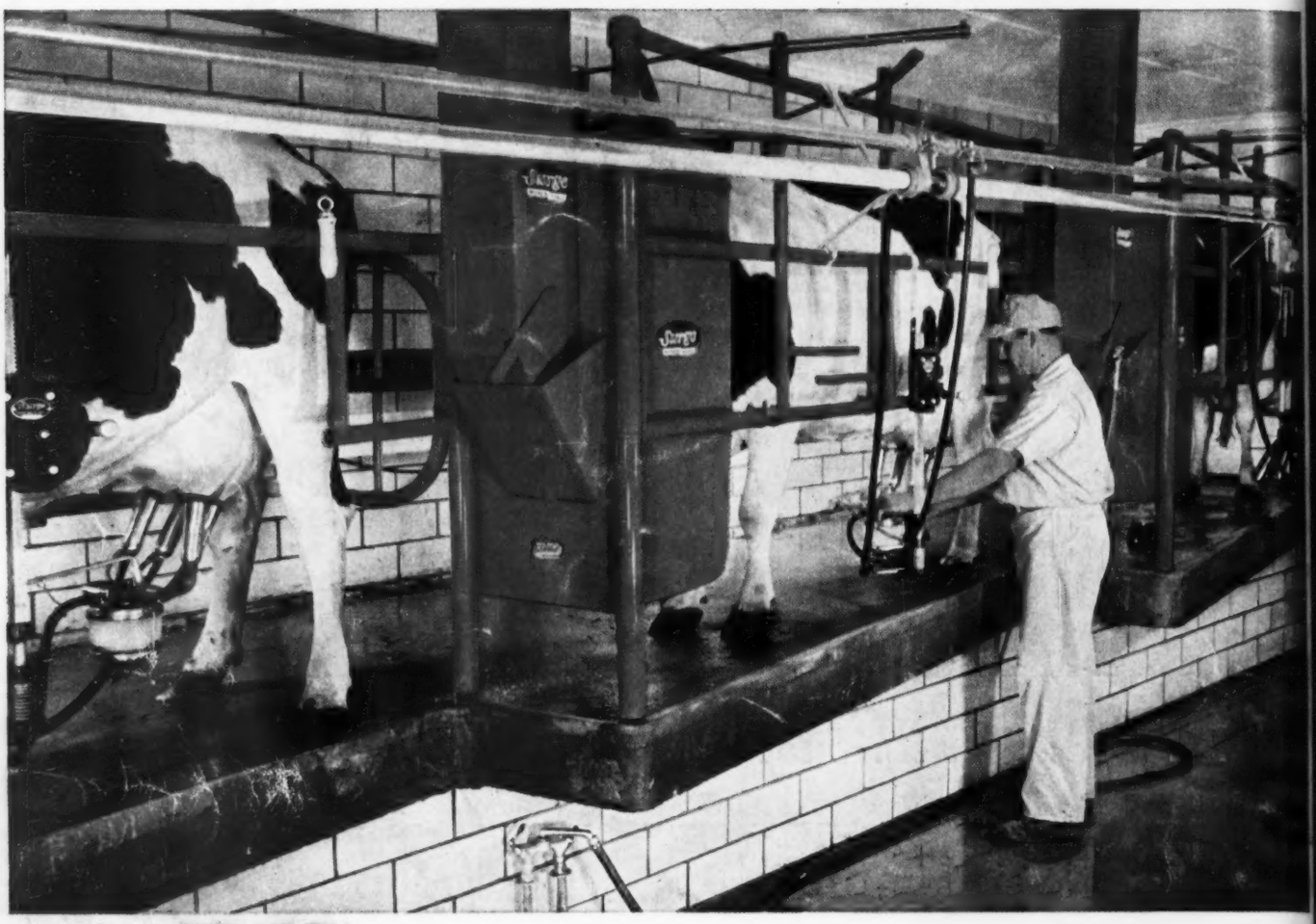

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